Solid State Logic

MT Plus
and
MT Production

Operator's Shortform Guide

82S6MMT050A

This Shortform Guide is designed as a (nearly!) pocket-sized reference for users who have had basic training in the operation of MT Plus or MT Production console systems. Further copies may be downloaded from our web site. If you are new to these consoles, the annotated front panel layout drawing at the end of this guide will be of immense use to you. If the drawing is missing, please contact you local SSL representative.

If you would like to comment on the usefulness of this guide, or make suggestions for further topic inclusions (or removals), please email productinfo@solid-state-logic.com

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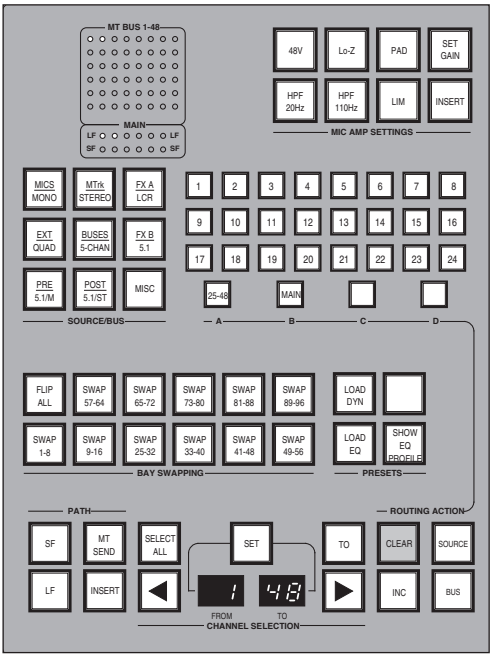
Routing

This section provides a straightforward guide to routing signals through the console, and also gives some useful shortcuts.

The console has an in-line design, with two faders per channel strip, the small fader (SF) and the large fader (LF). There are 48 general purpose multitrack busses, and 12 configurable main mix (programme) busses.

Source and bus routing is carried out on the central routing panel – see below (note that MT Plus also provides routing facilities above the channel strips). To enable the panel, press the **SET** button in its lower centre. The channel which was last accessed will appear in the **FROM** channel selection display.

To change this, either scroll through the channels using the arrow keys, or type the number using the general purpose numeric keypad, or press the lower (attention) key on the appropriate large fader. Once the correct channel has been selected, choose which signal path you'd like to route from the four buttons on the lower left side: **SF**, **MT SEND**, **LF** and **INSERT**. We'll assume you chose **LF**.

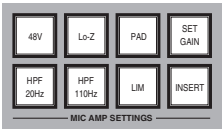


You now need to choose a routing action using the four buttons on the lower right side: **SOURCE**, **BUS**, **CLEAR**, and **INC**. The **BUS** button is only available if you chose a fader path to route, and the **INC** button only applies to ranges of channels (discussed later in this section). You'll notice that the **SOURCE** button has red engraving and a red LED, while the **BUS** button has black engraving – this colour coding extends to the nine dual-engraved buttons on the upper left side. These are used to choose either a source group (red engraving, arranged by type of signal) when **SOURCE** is selected, or a pan format (black engraving) when **BUS** is selected.

All of the sources for the system, including Mic, Line, and Digital inputs are arranged into source groups as **MICS**, **MTrk** (recorder returns), **FX A** (reverbs, delays, etc), **EXT** (DAT, CD-R, etc.), **BUSSES** (multitrack busses, etc.), **FX B** (EQs, compressors, etc.), **PRE** (pre-fader channel direct outputs), **POST** (post-fader channel direct outputs), and **MISC** (oscillator, talkback, and anything else!).

So if you want to route a mic to the large fader, press the **MICS** source group button, and the console screen will show you a list of all the mics available (see left). When you have found the source you want, press the corresponding numbered button. You will see the name of the source appear in the upper scribble strip on that channel. If more than 24 mics are available, the buttons on the routing panel marked **A**, **B**, **C**, and **D** will indicate additional pages by becoming half-lit.

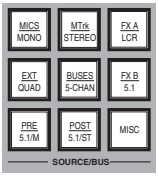
The **MIC** button at the top of the channel strip will be fully lit, giving direct access to the remote analogue preamp gain. To adjust the mic parameters, use the set of eight buttons in the top right side of the panel:



The **SET GAIN** button allows access to the currently routed mic input's analogue gain, through the **MISC** knob on the panel to the left of the routing. On the channel strip, you will see confirmation of the **48V**, **HPF**, and **LIM** (analogue limiter) settings on three LEDs to the right of the small fader.

The **INSERT** *button is only applicable to* **Super-Pre** *mic inputs, not standard SSL Mic Amp inputs, and requires the optional analogue insert point to be wired (please ask the tech staff at the facility).*

To route this large fader to the busses, press the **BUS** button at the bottom of the routing panel, which will give you access to multitrack (MT) busses 1 through 24 on the numbered buttons above the **A**, **B**, **C**, **D** buttons. To access MT busses 25 through 48, press the **25-48** button (doubles as button **A**); to route directly to the 12 main busses, press the **MAIN** button (doubles as button **B**). The numbered buttons indicate any pre-existing bus assignments when fully lit. When you have finished routing to busses, check the format of the panning using the first eight **SOURCE/BUS** buttons (there is no ninth pan format):



The feeds to multitrack and mix busses are not 'hard-wired' in any way, so you do not have to treat all odd busses as 'left' and even busses as 'right'. Instead, if you route a fader to bus 1 and bus 3 and choose **STEREO** pan format, panning left will feed bus 1, and panning right will feed bus 3. Pan formats repeat themselves as required, so routing to busses 1, 3, 4 and 5 in **STEREO** treats busses 1 and 4 as 'left' and 3 and 5 as 'right'.

Likewise choosing the **MONO** pan format will feed equal level to all those busses, and the pan control will be locked out (the scribble strip will read Pan N/A if you try to use the pan control). Any pan format may be used with the MT busses – different faders can feed different busses with different pan formats without conflict. Once you've pressed the pan format button you'll see confirmation appear in the scribble strip momentarily.

Pan formats are set up on the **CONTROL**/**Pan Format** display. If the selected format does not perform as expected, you may need to reset this display. See the MT Plus/MT Production Operator's Manual for more details.

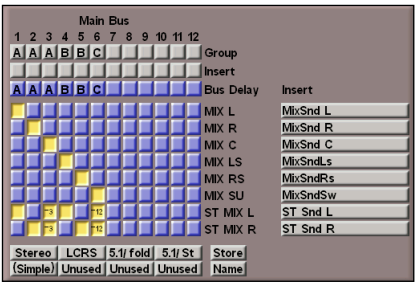
When routing to the main busses, it is important to note that the channel routing displays on the central routing panel and at the top of each channel strip use one LED for a pair of busses, ie. the first LED represents main bus 1 and 2. If the LED is half-lit, then one or other bus is routed, if the LED is fully-lit then both busses are routed. If you need to check, selecting large **BUS** and small **MAIN** buttons on the routing panel shows all main bus assignments as fully-lit numbered buttons. Note that both SF and LF can simultaneously feed the 12 main busses, and you can see their assignments on the channel routing displays. However, only one source can feed the MT busses – if it is the small fader, the **SF TO MT BUS** LED next to the pan knobs will be lit, if it is the LF then this LED will be off. Routing an input and busses with the small fader path follows the same process as detailed for the large fader above.

If you want to set an input to silence, or remove either fader's entire bus routing, you can select the channel number, path, and either **SOURCE** or **BUS**, then *press and hold* the **CLEAR** button until it flashes. Momentarily pressing the **CLEAR** button will not change any routing, so you are protected against accidental removal.

As a time saving feature, you can also choose a range of channels and route or clear them all with one action; choose the first channel in the range in the normal way, press the **TO** button to enable the range selection, then choose the last channel – the example given in the graphic on the first page of this section shows channels 1 to 48 selected. Pressing the **SELECT ALL** button will choose all channels. When routing sources into a range of channels, you can choose to increment the signal into each new channel automatically (**INC** on, default), or 'mult' the same signal into all the channels (**INC** off). This allows for fast routing of, say, 48 mics into 48 channels, or alternately the same oscillator/test source into all channels. Likewise, when routing to busses, each fader may be automatically routed to incrementing multitrack busses, or all may be assigned to the same bus(ses). In this way you can quickly set up mix minus (n-1) feeds using the multitrack busses: route SF 1-24 to MT Bus 1-24 (**INC** off, each fader to all busses), then remove SF 1 from MT bus 1 with **INC** on and each fader is removed from the same-numbered bus – Voilà, a 24-way mix minus setup in under 10 seconds!

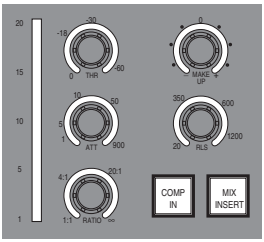
With signal routed onto the main busses, you need to choose how those busses will be submixed to the 5.1 output of the console. Stabbing the **MIX SETUP** then **Main Mix** menu boxes on-screen will bring up the mix matrix display:

The 12 main busses feed the matrix from the top, and any crosspoints (yellow) route those signals out to the **MIX** 5.1 outputs on the right. There is also a **ST MIX** output which normally feeds the cue system, but may be diverted to the control room monitors or any other system output. An 8-channel insert can be set up on the right of this display (here shown normalled with the **MixSnd** insert send signals to prevent loss of audio if the insert is accidentally switched in!).



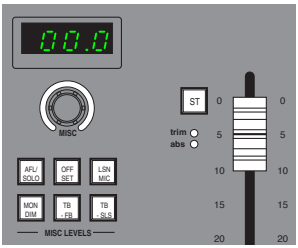
The mix bus insert is switched in with the **MIX INSERT** button in the upper left side of the centre section, adjacent to the mix compressor (see below). The eight grey boxes below the matrix are used to store and recall matrix presets. To recall a preset simply stab on it (**5.1/fold** preset shown above).

The three rows of boxes under the **Main Bus** legend are for creating bus groups, assigning inserts, and applying delays to each of those 12 busses prior to their entry into the matrix. Stabbing on one of the **Group** boxes and assigning a letter (from **A** to **F**) groups the main busses together. Busses in a group may then have their overall gain adjusted from **CUT** to **+10dB** using the **GROUP A-D** or **GROUP E-F** pages on the assignable control panel (directly above the routing panel in the centre section). From these pages, any and all bus inserts which have been assigned may be switched in and out for the group. To choose an insert for a bus, stab on the appropriate box above the matrix and choose the insert return signal from the pop-up which appears (all the signals are arranged in the same order as the source groups); the insert send is automatically made – this is the same process as configuring a channel insert, which may also be carried out from the central routing panel. Finally, the **Bus Delay** row allows a letter to be selected for each bus delay, ganging together the delay controls found in the **MAIN DELAY** page of the assignable control panel (see Section 2). The delays there may be set to compensate for different timing between subgroups, or to delay the entire mix output of the console up to 167ms in sample accurate steps.



Once the 5.1 mix signals leave the matrix, they pass through the mix insert point, then the 5.1 mix compressor in the upper left side of the centre section (see left). This is a 6-channel digital compressor with all sidechains and parameters linked together. The **COMP IN** button switches the compressor in circuit.

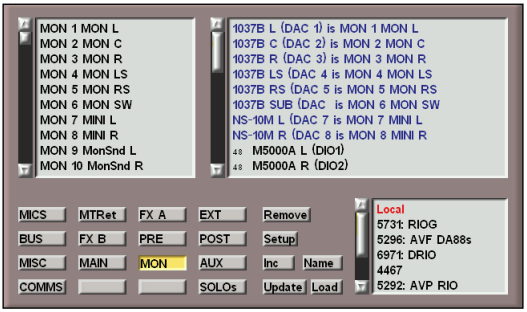
Following the mix insert point and compressor, the master fader is the last signal processing element before the output busses. This is a long throw, VCA style fader with touch sense and a level match feature for renulling the fader after snapshot reset, etc.



Whenever the fader's physical position does not match its actual processing value, the status button (marked **ST**, see left) becomes half-lit. Pressing and holding this button will enable level match, where the **ST** button flashes, and the green **trim** and red **abs** LEDs next to it also flash to show the direction to the null point. When the fader is in the correct position, both **abs** and **trim** LEDs stay solidly lit, and level match mode may be cancelled by pressing the **ST** button once more.

There is also a master fader offset, which allows the 5.1 output gain to be trimmed up or down by up to 20dB, regardless of the position of the master fader. This feature is accessed in the **MISC LEVELS** area to the left of the master fader, by pressing the **OFFSET** button there and adjusting the pot to the desired level (this defaults to 0.0dB, and is shown in the numeric display).

Having made it this far, all that's left is to route the mix busses out to recorders, distribution, or other destinations. To view or change output routing, select **MACHINES**/**Outputs** on-screen:



This display is divided into four areas: top left is the list of signals available from the source group which is currently selected at the bottom left, and top right lists the hardware outputs available in the I/O unit currently selected in the list to the bottom right.

Normally these I/O units will be identified with their network ID, but may have a user given name (here **RIOG** for RIO Grande).

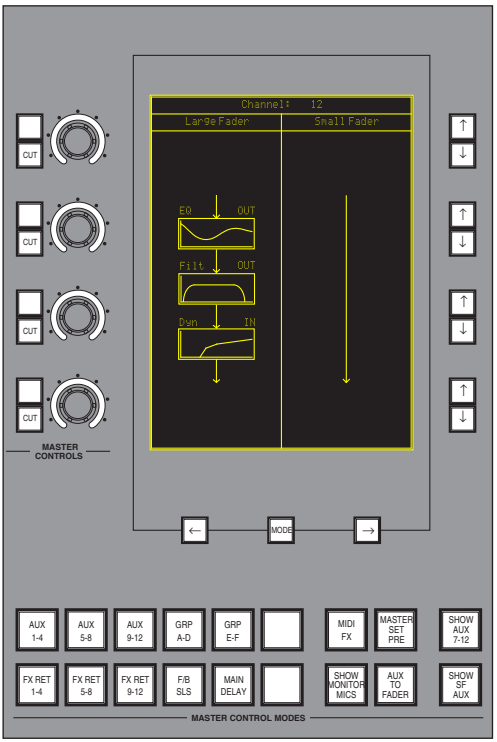
To route signals out of the console, select the output from the upper right-hand list, then choose a signal from the upper left-hand list. You will see the signal name appended to the output name to indicate that the route is made.

In the example above you can see that the eight **Local** analogue outputs have been fed with the 5.1 main and stereo mini monitor busses (**MON L** through **MINI R**). Any output which has a number before it is a digital output – the number is the sample rate selected for that AES pair. If you want to route a set of consecutive signals to consecutive outputs, route the first, then select the **Inc** box and stab on the other outputs in turn – the console then automatically increments the signals from the list to each new output. To remove a route, stab on **Remove**, then on the route in the right-hand list. The other options are mainly used for calibration and system setup, so are not of relevance here.

That's as far as we need to go, and this section should get you up and running with audio through the console. With a little experimentation, you'll soon be able to make complex and flexible routing assignments to handle the most demanding of sessions.

Assignable Panel

This section provides a guide to the several functions available from the central assignable control panel and its ELD screen.



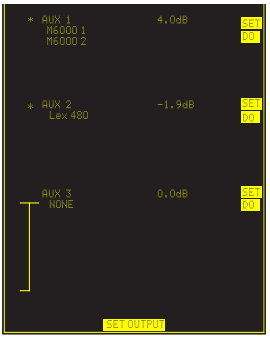
The panel has four knobs to the left of the screen which are used to adjust levels or scroll through lists, with a **CUT** button used to mute audio or act as a 'shift' function for the operation of the knob. Below the screen are two arrow buttons used to change between screen pages, and a central mode button used to alter the function of the eight soft keys to the right of the screen.

When none of the buttons in the **MASTER CONTROL MODES** area of the panel is selected, the graphical display will show the processing assignment of EQ, Dynamics, and Filters in the currently selected channel (see left). This display follows any changes you make to channel parameters, ie. it will show you the processing order as you adjust the channel's settings on the control surface.

This provides a detailed guide to the allocation of processing, although the same information is also shown on the channel strip by means of colour coded LEDs (below the EQ section).

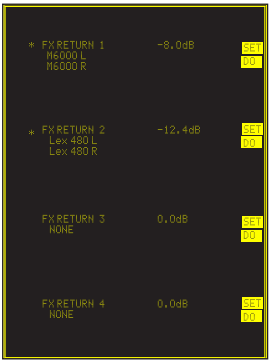
Additionally, each of the processing pictograms follows the parameters you have set on the channel, so you see an accurate representation of the EQ, Filter and Dynamics curves.

Selecting the **AUX 1-4** button will display the first four aux masters on-screen (see next page), each in line with one of the knobs to the left of the display. This page allows you to set the aux master level from Off to +10dB using the knob, or to cut the aux master using the small **CUT** button to the left.



To route an aux bus directly out to an effects device, press the central button below the screen to cycle through the function options until you see SET OUTPUT at the bottom of the screen; press the SET button to the right of the aux master you want to route. You can now use either the arrow buttons below the screen, or the knob, to scroll through the preset list of effects devices. When you have found the device you want to use, press the DO button to the right of the screen– the console will now route the aux master bus out to the input(s) of that effects device.

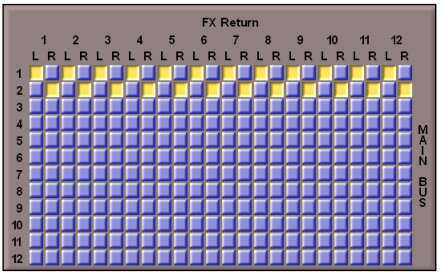
To make a stereo aux, press the central button below the screen until SET STEREO is displayed, at which time you'll see a SET option appear on the right of the screen against the first and third lines only. Pressing one of these buttons will link together that odd/even aux pair as a stereo bus (eg. aux master 3&4, as seen in the example, above left). If a stereo effects device was being fed from one of those mono auxes before you linked them, then the new stereo aux will feed that same device. If you have both mono auxes routed to effects, you will not be allowed to make a stereo link until you have removed one or other of those devices.



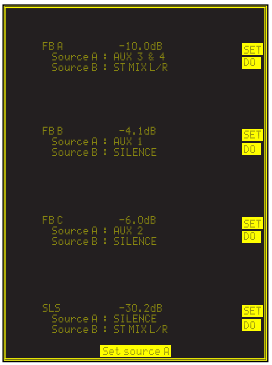
By default, routing for the 12 stereo effects returns is linked to the aux master routing, so choosing a destination for your aux will automatically route that device's corresponding output signal(s) into the FX return, seen by pressing one of the **FX RET** buttons (see graphic on the first page of this section). If you want to break this link, then on the aux page make sure no destination is selected for the aux master, then cycle the central button below the screen until you see SET LINK. Pressing one of the SET buttons to the right of the screen will now toggle the link on and off (link *on* is shown by a star '*' in front of the aux number on this screen). When the link is removed, you may route to and from different effects devices with the same numbered aux master and effects return; the link status may be saved to disk in your Project. Routing into an effects return uses the same process as for routing an aux master, and you will see that if the aux/fx linking is in place, choosing a device for an effects return will automatically overwrite the destination for the aux send. The twelve stereo effects returns feed directly onto the 12 main mix busses, without any intermediate processing.

To check which of the console's 12 main busses each stereo effects return is feeding, see the **MIX SETUP/FX Returns** menu page on the main TFT screen:

In this example (right), all the effects returns are feeding main bus 1 and 2. In order to make best use of the effects returns, it's a good idea to split the default routing link between a stereo aux and the effects returns. In this way, you can use stereo aux 1&2 to feed your effects, but only use stereo effects return 1 for the return signals, leaving stereo effects return 2 free for another unit. Breaking the link also allows other signals, stem mixes for example, to be fed back onto the main mix busses



Additional buttons below the ELD screen access the same functions for the other auxes and effects returns. The configuration of stereo auxes and routing is saved in the Project; all levels and cuts may be dynamically automated.



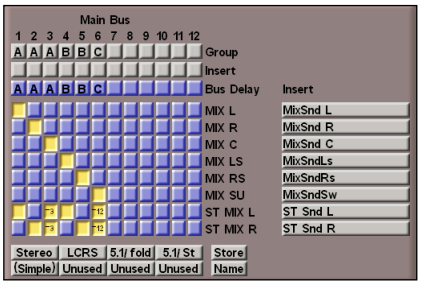
The button marked **FB/SLS** allows access to the master foldback and studio loudspeaker configuration. There are three stereo foldback busses, and one stereo SLS bus. Each of these stereo busses may be fed with a mix of preset signals, which are arranged into two groups, Source A, and Source B. The options are:

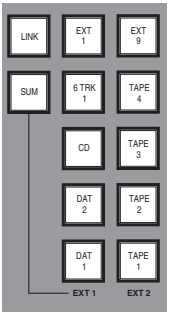
`Source A:` any mono or stereo aux master,

`Source B:` the stereo fold-down mix, or any effects return, or any external monitor source.

To set Source A, toggle the button below the screen until you see `Set source A`, then press the `SET` button to the right of the foldback or SLS bus of choice. The arrow buttons below the screen may now be used to cycle through the options (as listed above), and the `DO` button confirms the selection. To set Source B, toggle the button to the appropriate selection, then repeat the procedure as for Source A.

The stereo fold-down mix, **ST MIX L** and **ST MIX R** is derived from the main mix matrix as seen on the TFT screen (**MIX SETUP/Main Mix**). See Section 1.

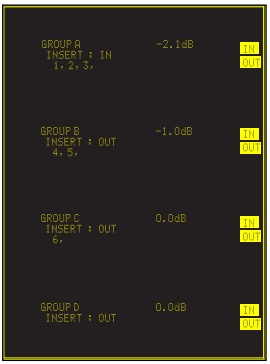




The external monitor source buttons are to the left of the assignable control panel in two banks of twelve, **EXT 1** and **EXT 2**. Each button may be programmed with a source of up to 5.1 channels. However, only the left and right channels of any of these sources is directed through to the foldback or SLS busses. Multiple external sources may be mixed together by selecting **SUM**, then latching up to three sources in either bank. Additionally, both external banks may be linked with the **LINK** button, allowing up to six sources to be active simultaneously.

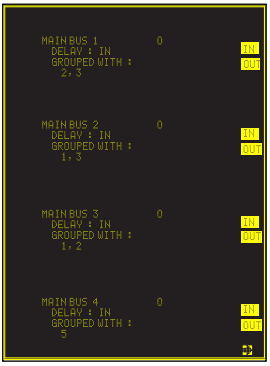
It should be noted that these external source selections feed the foldback and SLS busses regardless of their switched feeds to control room monitors. So, **EXT 2** could be used as an audio switching matrix for a video control room, for example, without the need to listen to those sources also in the audio control room.

To adjust the balance between Source A and Source B, use the master aux level or master effects return level respectively. The external sources are fixed at 0dB gain.



The **GRP A-D** button gives access to the console's audio subgroups A to D. On the mix matrix display (see previous page), the 12 main busses which feed signal into the matrix may be grouped together by assigning the same letter to them in the **Group** row, eg. busses 1, 2, and 3 are in subgroup **A**. Once they are linked like this, the level of each bus in the group may be adjusted with the appropriate master control knob to the left of the screen on either the **GRP A-D** or **GRP E-F** page. The **CUT** button may also be used to mute the signals before they enter the matrix.

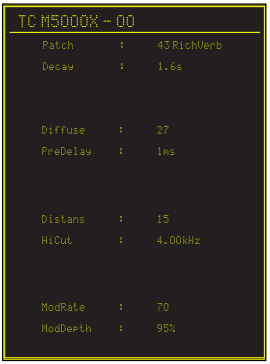
Each of the 12 main busses has its own insert point. These are linked by group, and are switched using the IN and OUT buttons to the right of the display. Inserts may only be switched using this method – if a main bus is not in a group, its insert may not be switched in/out.



The **MAIN DELAY** button on the assignable control panel shows the delay amount, linking, and status for the 12 main busses. On the mix matrix display (see previous page), the row of boxes marked **Bus Delay** indicates the status of the delay for each of the 12 main busses (blue = in, grey = out), and the linking set up, made in the same way as for the bus groups.

The delay may be set between 0 and 8000 samples (approx. 170ms) in sample increments. The knob is used to alter the value, and the **CUT** button is used to select fine trim (with the **CUT** button *off*, rough trim has steps of ~48 samples). The delay may be switched in or out of circuit using the IN and OUT buttons to the right of the display. Access to the three pages of bus delays (bus 1-4, bus 5-8, and bus 9-12) is through the arrow buttons below the screen.

Selecting the **MIDI FX** button will show any MIDI effects library which has been loaded for the current session (**CONTROL**/**Effects**/**Midi FX**). If none has been loaded, you will see NONE SELECTED on this screen, otherwise you will see a display similar to that shown right. The name of the effects library is shown in the title bar, with up to eight entries below – the first line is always the patch name.



When the MIDI output of the console is active and a suitable effects device connected, you will be able to adjust the patch loaded on that effects device, and up to seven of its parameters. Each of the knobs to the left of the screen can access two parameters – selecting the **CUT** button toggles control onto the lower parameter.

The pairs of buttons to the right of the screen may be used to increment and decrement the current value by one step, while the knob acts as a continuous control. If you have multiple libraries loaded, you may page between them using the arrow buttons below the screen.

Project Management

This section is designed as a straightforward guide to the structure and use of the Project (session storage) system, but also provides some useful shortcuts.

All console configuration data is held in volatile memory (RAM) while the console is in operation – if power is lost to the processor, this data is also lost. To store the data permanently, it must be saved onto the internal hard disk drive ('system disk'). The Project system arranges console configuration data into a set of chronological records – a new record is created each time a Project is saved – and we recommend that you save regularly!

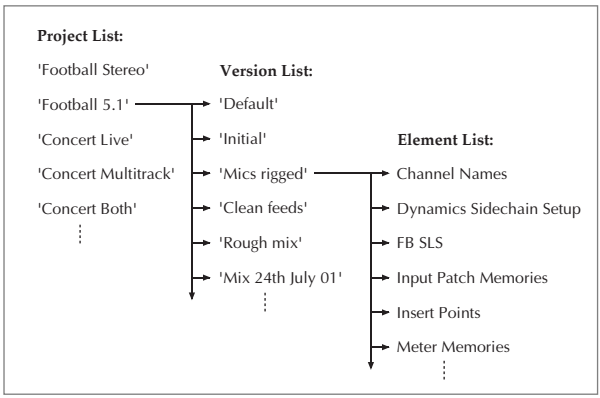
Each new session or track should use a new Project, so that different jobs may be kept separate and distinct. Within the Project, console configuration data may be saved as often as desired, each new save being given a unique name within the Project.

The Project is split into three levels of organisation:

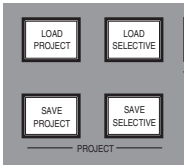
At the top level, a Project contains all data necessary to reset the console to the exact setup present at each of the saves. It is similar to a folder or directory on a PC (or Mac!).

Every time a Project is saved, a new 'Version' is created, which must be named. This newly created Version will store all of the differences between the previous Version and the current state of the console (unless otherwise directed); the Version list covers the entire progress of a session.

The third level of a Project comprises a list of 'Elements'. Each Version saves a number of Elements which address specific parts of the console's setup – these Elements define the channel names, foldback/cue sends, input and output routing, etc.



A Version may refer to an entirely new set of Elements (ie. everything has changed since the previous Version was saved), or it may share existing Elements with earlier Versions (ie. some data is unchanged since the last save). This prevents the system disk from filling up with duplicate Element files, so Project data storage is kept relatively small. For archiving purposes, the Magneto-Optical drive is used to backup Projects on the system disk (see below).



The Projects menu can be found on screen under the **CONTROL** menu. There are also four shortcut buttons on the front panel for direct access to save and load functions (see left).

Creating a New Project

To create a new Project, stab **CONTROL**/**Project**/**New**. Choose a suitable template from the list of existing Projects that appears (see below), and then enter a name for the new Project.

The system will automatically highlight **Default Project: XXXX** (where XXXX is your system serial number) as the template. This will have all of the standard routing etc. already included, so is an ideal starting point for a new session. An exact duplicate **of the latest Version** of the Project will be created. If preferred, you may use any other Project as the template.

Once the template has been chosen and the Project is built, you will be asked if you want to load it – if you are just starting a new session, select **Yes**, but if you already have a mix set up, select **No** to keep the work you have already done, then save it into your new Project (see opposite).

Your new Project will now be displayed in the **Current Project:** bar (see left). The Current Project is always the destination for all subsequent Project saves.

Saving a Project

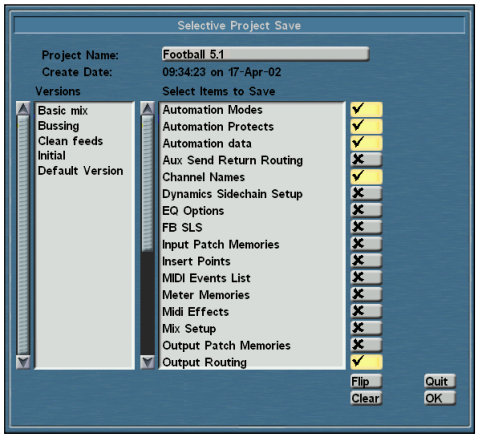
Either press the **SAVE PROJECT** button on the front panel or stab **CONTROL**/**Project**/**Save**. You will be prompted for the name of the new Version.

Tip: If you have a Version name which ends in a number, eg. '**Run Thru 1**' then the system will automatically increment this number the next time you save, eg. it will offer you '**Run Thru 2**' which you can accept by selecting **OK**, or you can choose a different name.

Saving Individual Elements

Either press the **SAVE SELECTIVE** button or stab on **CONTROL**/**Project**/**Save Sel** to produce a pop-up similar to that shown below:

Our example shows five key elements selected (ticked) for saving into a new Version. Data for all the other Elements will remain as it is in the current Version.



If an Element appears 'greyed-out' it has been write protected in the **MISC**/**System**/**Proj Setup** menu. Write protected Elements will not be saved when the Project is 'globally' saved using the **SAVE PROJECT** button. On the **Selective Save** pop-up, the write protection can be overwritten by ticking the box of the greyed-out Element. You will be asked for confirmation when you press **OK**.

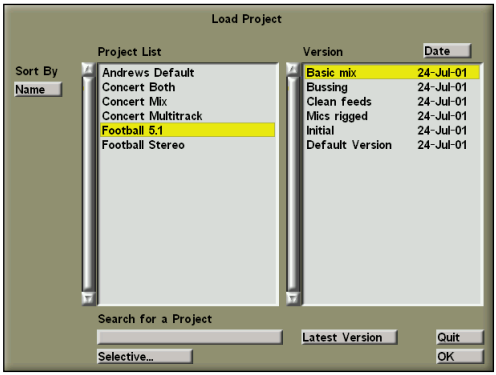
Here is a brief description of the contents of all the Elements in a Project Version:

Automation Modes	Automation modes for all the automated objects.
Automation Protects	Automation protects for all the automated objects.
Automation data	Mix passes which may be used as the Reference Mix pass.
Aux Send Return Routing	Status of the Aux send/FX return linking.
Channel Names	Names entered for the group, small, and large faders 1-96.
Dynamics Sidechain Setup	Configuration of all the dynamics' sidechains.
EQ Options	EQ profiles applied to each channel.
FB SLS	Foldback and studio loudspeaker configuration and routing.
Input Patch Memories	Contents of the current input patch memories.
Insert Points	State and position (pre/post) of the channel Insert points.
MIDI Events List	Settings on the MIDI time pop-up.
Meter Memories	Details of the ten meter memory locations.
Midi Effects	Current MIDI effects setup.
Mix Setup	Settings in the **MIX SETUP** menu, including subgroup levels and bus delays.
Output Patch Memories	Details of all the output routing memories.
Output Routing	Details of all output routing including Aux send and FX Return routing.
Project Snapshot	The snapshot taken at the moment a Project Version is saved.
Serial Machines Config	Settings made on the **MACHINES**/**Serial** display.
Snapshot Positions	Contents of the 64 Snapshots stores.
Stereo Channels	The record of which channels are linked as stereo channels.
Surround Pan Format	Contents of the **CONTROL**/**PanFormat** display.

Timecode Memories	Contents of the ten timecode locate stores.
Source Routing	Source routing configuration, **GROUP**/**TAPE** selections, and master status.
Events List	Contents of the Events List.
Macro routing keys	Macro button configuration.
Audio fader grouping	Stores details of any fader groups created.

Loading a Project

Press the **LOAD PROJECT** button, or stab **CONTROL**/**Projects**/**Load**, to produce the following pop-up:



The Project list on the left shows all the Projects currently stored on the system disk. Each Project will have a list of its own Versions – the list shown on the right.

The Project list can be sorted either by **Name**, **Size**, **Create Date**, or **Modify Date**.

The Versions list will always be in **Date** or **Time** order, the most recent at the top of the list.

Select the Project you want either by stabbing it or by moving up and down the list with the up/down cursor buttons. Then, select the required Version either by stabbing it or by using the left/right cursor keys to switch to the Version list. Stabbing **Latest Version** will automatically select the most recently saved Version.

Press the **OK** button or stab **OK** to load the Project; the console will reset accordingly. The **Current Project:** bar will now display the Project you have just loaded; any further saves will be saved into that Project.

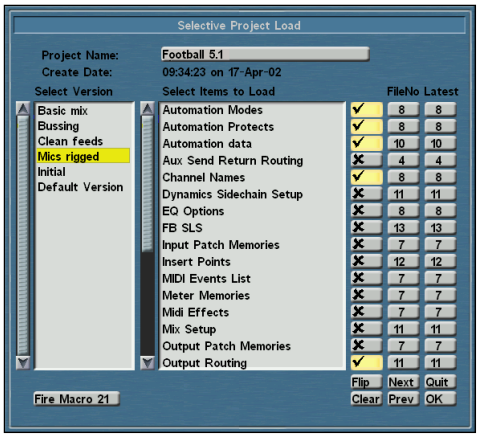
Selectively Loading Elements

Loading a complete Project as described above will load every Element from the Version you choose, and the Project you have loaded will become the Current Project (see additional information on the Current Project opposite).

At some point you may wish to load just one or more Elements from the Current or any other saved Project Version. For example, you might want to retrieve the Automation Data from a previous Version of your Current Project, or from a Version saved within another Project, without changing the other settings of the console.

When you selectively load from another Project, you *do not* change the Current Project. (Imagine you are working on a document on a computer. You can copy and paste from another document and save it into the one you are working on. Selectively loading from another Project into your Current Project and then saving that Project is a similar process, except that you are not changing words on a page but settings on the console.)

Press the **LOAD SELECTIVE** button; a pop-up will appear similar to that shown below:



The top of the pop-up shows the Project from which you are loading material. To the left are the Versions – any one can be stabbed for selection.

On the right is a list of Elements. Stab on the cross next to any required Element to turn it into a tick for loading. In the example shown here, five key Elements will be loaded.

All ticks can be cleared by stabbing **Clear** at the bottom of the page. **Flip** inverts the cross/tick selection.

The column labelled **Latest** shows the total number of saves made for that Element within the Project. The column labelled **FileNo** shows the save number of that Element for the selected Version. The **Next** and **Prev** boxes allow the next or previously saved Elements to be loaded, irrespective of Version choice.

Stab or press **OK** when you have made your selection. The Element(s) you have chosen will be loaded and the console settings will change accordingly. Don't forget! These new settings will be in volatile memory (RAM) only until you *save* your Project!

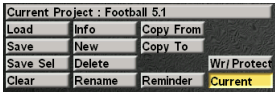
The Current Project – Additional Information

When a complete Project Version is loaded it becomes the Current Project and its name will be displayed in the **Current Project:** bar in the **CONTROL/Project** menu. All saves, whether global or selective will be made into the Current Project (think of the Current Project as the only 'save destination' in the Project system.)

You can save into a different Project by stabbing on the **Current Project:** bar and selecting any Project from the list. This does not load that Project or make any changes at all to the desk settings, except for changing the destination of any subsequent saves. This is useful if you have started work, but some way into the session you realise that you are in the wrong Project and you want to save the console settings. By changing the Current Project as described above, you can select the correct destination for your saves.

Or, if you want to create a new Project to save into, and do not wish change the console settings, create a new Project as described on Page 4-2, and when asked: '**Do you wish to Load the new Project?**' simply say **No**. The Current Project will be your newly created Project, and you can then save your work into it.

Bootup Project



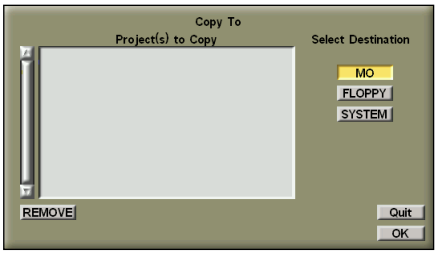
The yellow box at the bottom right corner of the **CONTROL**/**Project** menu can be stabbed to toggle between **Current** and **Default**.

When set to **Current** the Current Project will be loaded when the console boots up. When set to **Default** the Default Project will be loaded when the console boots up, *but* the **Current Project:** bar will still display the Project that was current when the console was rebooted.

Backing Up Projects

To back up a Project to either MO or Floppy:

Insert a formatted Magneto-Optical or floppy disk into the relevant drive (formatting is carried out via the **MISC**/**Tools** menu). Stab **Copy To** in the **CONTROL**/**Projects** menu:



Stab in the large grey box. You will see a list of all the Projects on the system disk (see below). On the right hand side of the pop-up you will also see the Versions associated with any Project you highlight.

Stab on the Project(s) you wish to copy. If you do *not* stab a Version then the entire Project with all its Versions will be copied.

Important Note: Although you can back up individual Versions, this must be done into a Project with the same name as the source Project. Since having two Projects with the same name but containing different Versions may cause confusion, we recommend that you only back up entire Projects.

When you have made your choice from the Project list, stab **OK**. The Projects you selected will now be in the **Project(s) to Copy** box. If at this point you change your mind, or have made an error, stab **REMOVE** and remove Projects from the list by stabbing on them.

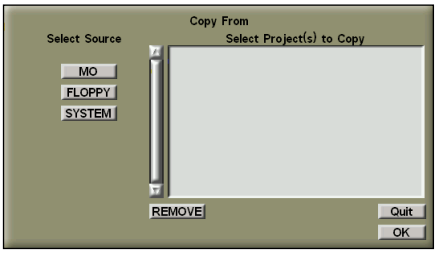
Under **Select Destination** you have three choices: **MO**, **FLOPPY** or **SYSTEM**. Choose either **MO** or **FLOPPY** according to the medium you have loaded. If you choose **SYSTEM** this will result in multiple copies of the same Project in the Projects directory on the system disk, and should be avoided. When you selected the destination, stab **OK** and copying will begin.

Note: When you backup a single Project, you will be asked whether you wish to rename it, and the QWERTY pop-up will appear with the Project's current name. This allows you to chose an alternative 'archive' name or add a suffix, eg. **RIPCORD.bak**. If there is a Project on the destination disk with the same name, you will be asked whether you wish to overwrite it.

Restoring Projects

To restore a Project from MO or floppy:

Insert the Magneto-Optical or floppy disk into the relevant drive. Stab on **Copy From** in the **CONTROL**/**Projects** menu:



Select the relevant source drive – **FLOPPY** or **MO**. Another pop-up will appear (similar to that shown opposite), displaying a list of all the Projects on the selected disk.

To restore an entire Project, simply stab on its name and all the Versions will automatically be included. You can select as many Projects as you need.

Stab on **OK** and the selected Project(s) will appear on the **Copy From** pop-up. If at this point you change your mind, or have made an error, you can stab **REMOVE** and remove Projects from the list by stabbing on them. Stab or press **OK** and the copying will begin.

Note: When you restore a single Project, you will be asked whether you wish to rename it, and the QWERTY pop-up will appear with the Project's current name. This allows you to chose an alternative 'restored' name or add a suffix, eg. **RIPCORD.res**. If there is a Project on the system disk with the same name, you will be asked whether you wish to overwrite it.

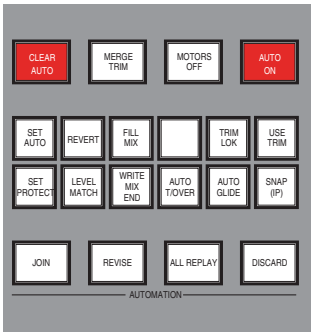
Write Protection

When the **CONTROL**/**Project**/**Wr/Protect** box is selected (yellow), any saving to the Current Project is disabled. This setting remains Project specific; ie. if you Write Protect a Project, change to a different Project and then change back again, your original Project will still be Write Protected.

Automation

What can be automated? Virtually every control on the console, including 'layered' channels, can be automated at any time. Automation can be written with machines in stop, play or even fast wind. A section of the mix can be 'filled' by simply locating to its end without having to play through in real time.

To simplify the process of producing a number of mixes with slightly different levels, there is a comprehensive and powerful off-line trim facility. In addition a mix can be edited off-line to facilitate removals, insertions, copying, joining etc..

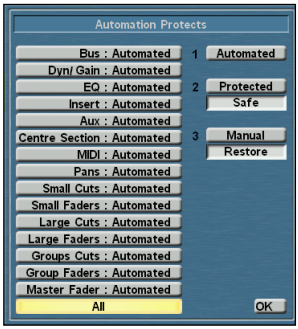


The first step when starting a new mix is to clear any previous mix data, making sure that any mixes from a previous session have been saved to a Project! Press the red **CLEAR AUTO** button (see right). You will be asked for confirmation – press **OK** if you wish to proceed.

Automation Protects

These enable you to choose which controls you want to automate at the beginning of the mix. As the mix progresses, you can automate more controls or protect your work as required.

Press the **SET PROTECT** button and you will see the Automation Protects pop-up (see right). This shows all the controls that can be automated on the console, and whether they are **Automated**, **Protected**, or in **Manual**.



The names of the controls are self-explanatory. For instance, **Bus** refers to the bus routing from the channel – both to the multitrack and main output busses, including the pan format; **Dyn/Gain** means the dynamics and channel gain parameters, etc. (for a full list see the MT Plus or M T Production Operator's Reference Manual – Section 7).

The three types of protection operate as follows:

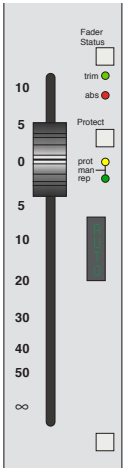
Automated No protection; this is the default for all automated controls and means data can be written to, and read from, the automation system.

Protected Used to protect existing automation from being overwritten. There are two variants, chosen by stabbing on the box below **Protected**:
Safe means that automation will be played out regardless of any adjustment of the controls.
Override enables changes to be made and heard during the mix, but they will not be recorded as mix data.

Manual Automation is neither written to, or read from, the computer but adjustments can be heard. Again, there are two variants, chosen by stabbing the box below **Manual**:
Record means that if a control is returned to **Automated –** *and* there is a difference in level/state – then it will drop into record to write that change.
Restore allows changes to be made but the control will not drop into write when returned to **Automated**.

The protection settings are changed by first stabbing on a control group box (eg. **Large Faders**), or by scrolling to it with the up/down cursor keys. Now choose the protection type by either stabbing on one of the three boxes on the right, or by scrolling through with the left/right cursor keys. Also, each individual control section can be protected – choose the control group on the pop-up (eg. **EQ**) then press the **Protect** button on any channel to change the EQ protection for that channel alone; the modes are shown in the channel scribble strip. The protection pop-up will alert you if the mode set for a control group, as shown on the pop-up, is not the same on all channels – there will be an asterisk next to the control group, eg: **EQ: Automated***.

Usually all controls are all set to **Automated** at the beginning of a mix. Any protection mode can be overridden on a per-channel basis using the **Protect** button on each fader(see below).



Pressing **Protect** toggles between the three modes as follows:

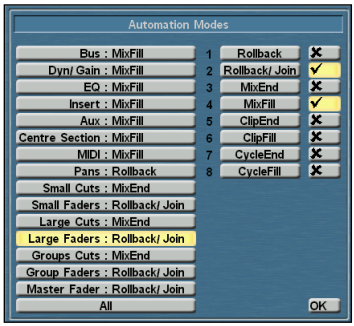
Automated	no LEDs lit
Protected	yellow **prot** LED lit
Manual	yellow **prot** LED and green **rep** LED lit.

This changes the protection state of the *entire channel*, overriding any global setting for the controls set up in the **Automation Protects** pop-up.

Protection Modes are saved in the Project.

Automation Modes

These are used to interpret the data recorded in a mix pass once a rollback has occurred. To check and set the automation modes, press the **SET AUTO** button. The resulting pop-up shows the current automation status of each set of channel controls (see right).

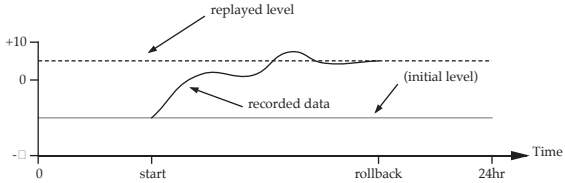


The suggested settings for a *first mix pass* are as follows: all controls to **Mix Fill** except the Cuts to **Mix End** and the Faders to **Rollback**/**Join**.

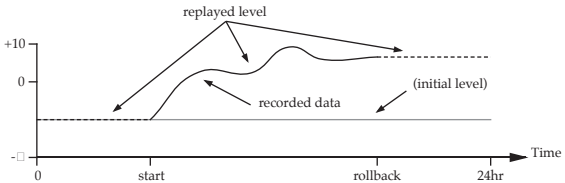
Change the modes in a similar way to Automation Protects: either stab or scroll up and down to select the control group, then stab or scroll left and right to select the mode. The modes of different channels' controls can be scrolled through using the **Fader Status** and **Protect** buttons on the large fader to choose the control group and the mode. The scribble strip will show the selection.

There are four major automation modes which are described in order of their range of effect:

Mix Fill: This is a 'static' mode, meaning that no dynamic *moves* are written. The state of the switch, or level of the fader/rotary control at the rollback point will be written for 24 hours. It will 'fill the mix' with that level, overwriting *any* previous automation data. Busses and rotary controls, such as EQ, dynamics and auxes, can be set to **Mix Fill** to establish starting levels for the entire mix.

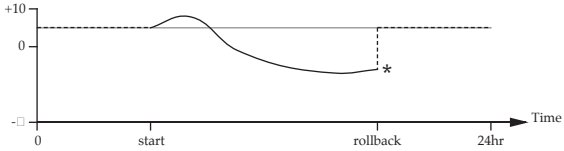


Mix End: Any moves written up to the rollback point will be kept. Whatever the level was at the rollback point will be written forward to the end of the mix, overwriting any previous automation data. For instance: some cuts are written and then the mix is rolled back *with the cuts enabled at that point*. When you play through the mix, those dynamic cuts will be replayed until the rollback point, and then will remain active until the end of the mix.

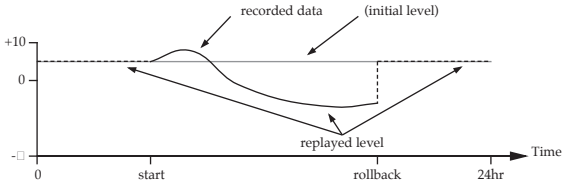


Note: Each time you rewind an automated mix, a rollback 'marker' is created for those channels in write. These are graphically represented on the **Overview** page by either red (Absolute) or green (Trim) lines across the display. The markers are removed when you stop or roll back, after playing through them.

Rollback Join: This is only available for faders. Any moves up to the rollback point will be recorded and replayed. In any subsequent replay, the fader will automatically drop into write at the rollback point, at the level it was at that point. If a fader is dropped out of write it will revert back to the previous mix level from that point onwards. **Rollback Join** is the mode usually chosen for faders, as it allows the mix to be developed stage by stage with the faders dropping back into write at the same level whenever a new section is entered. (This mode is the most similar to SSL's G Series automation.)



Rollback: When a control is in **Rollback** it will only write automation data when in a write status. If the control is returned to replay at any point, it will revert to the previous mix pass whilst keeping all the written data up to that point. Similarly, when replaying a mix, a control will replay all the moves, then at the rollback point continue in replay regardless of any rollback marker. This may be used to 'insert' new moves without affecting data before or after the insert.



There are two extra modes that work with any **Cycle** points that have been set:

Cycle Fill: This is similar to **Mix Fill** but instead of writing the level of the control at rollback to the entire mix it writes it between the cycle points. This mode is useful when you want to quickly change levels for one section (eg. a chorus), and then return to the original level after that section has passed.

Cycle End: This is similar to **Mix End** except the limits are the cycle points. Moves may be recorded and replayed, but if the control is in write at the rollback point then that level is written to the cycle end time.

Clip Fill and **Clip End** modes are not applicable to MT Plus/Production.

Of course, rolling back is not the only way to drop out of write on a fader. Having made a new move, you can drop out to replay of the previous pass level by simply pressing the fader status button. The data that you have just recorded will be incorporated in a new mix pass at the next rollback point, but will not be influenced by the current Automation Mode selected for faders.

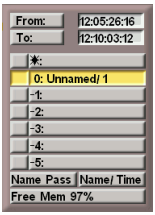
Automation Modes are saved in the Project.

Using the Mix System

Locate to a point just before the recording starts. If the timecode value is known, it can be useful to disable any tape machine and just locate the console. If this is a new mix, don't forget to press the **CLEAR AUTO** button, this will clear out any mixes from the mix pass list, and give you a clean start. Check the Automation Protects and Modes settings to avoid confusion later.

Press **AUTO ON** on the Master Control panel. All automated controls will drop into write for a static pass, except the faders which will be dropped into Absolute write with their red **abs** LEDs on. The **AUTO ON** button will flash to show that a 24-hour static 'snapshot' has been taken. This is a safety measure and is *not the first mix pass*. If there is still a mix in memory, pressing **AUTO ON** will change the controls to match the memory's contents. Don't panic! Your balance can be recovered by recalling the **Pre Enable** snapshot from the **CONTROL**/ **Snapshots** pop-up.

Locate to just beyond the end of the recording and then roll back to the beginning. This will create a mix pass called **Unnamed/1** in the mix pass list (see below). This is a static pass of all the controls at their initial balance positions for the duration of the material. The duration of the material is represented in the mix **From:** and **To**: boxes above the mix pass list. If the mix goes beyond the **To:** time then all the controls will automatically drop into write, to extend the mix as required.



The tape machine can now be enabled and the mix can begin. Each time any changes are made while the mix is running, eg. a fader is moved or a control is turned, then the **AUTO ON** lamp will flash indicating that there is new mix information. When the tape is rewound (rolled back) then a new mix pass is created and the lamp stops flashing.

The mix pass list will build to a maximum of six passes on a first-in/first-out basis. Each mix pass will be given a unique number. A mix pass can be named by stabbing on **Name Pass** then selecting the pass.

When a mix drops off the bottom of the list, it is removed from RAM and is not recoverable. The current mix, ie. the one being replayed, is indicated by a yellow box to the left of its name, the previous mix has a black arrow. You can revert to any mix and make it the current mix by stabbing on the box to the left of the name. Alternatively pressing the **REVERT** button will toggle between the current mix and the previous mix. Up to three mixes can be kept in RAM, and prevented from dropping off the mix list by stabbing on them so that their name box turns yellow; any mix 'kept' in this way will move to the bottom of the list and stay there until the console is rebooted, **CLEAR AUTO** is pressed, or it is stabbed again (unlocking it) so it moves off the list in the normal manner.

All mixes in the mix pass list are stored in RAM, and will be lost if the console is rebooted or the automation is cleared. To save a mix to disk, save the Project (the 'Automation Data' element of the Project contains the mix information). It is the *current* mix that is saved when the project is saved, ie. the mix with a yellow box to the left of its name.

When a mix is saved to disk it becomes the Reference mix, and will appear at the top of the mix list in the box with an asterisk ✳. It will be renamed according to the Version name used when the Project was saved. When this mix is saved again to disk, a new Reference mix is created, and the old Reference mix will be moved to the top of the mix pass list prefixed with an **R**. It will then move down the list as per usual. Any previously saved mix can be recalled by loading previous Versions of the Project. Any mix recalled from disk will become the new Reference mix. A new Reference mix will also be created when **MERGE TRIM** is used (see Page 4-6).

Absolute and Trim

There are two possible write statuses for the faders: Absolute and Trim. Faders default to Absolute until **USE TRIM** is selected on the Master Control Panel.

In Absolute, the physical position of the fader is written to the mix; the first mix pass will always be in Absolute. In Trim, the relative position of the fader with reference to the 'null' point will be written to the mix; the null point is determined by the absolute level at the moment you drop into Trim. When in Trim, the motors are turned off to allow the fader to act as a trimming control, and the scribble strip indicates the amount of trim in dB (see also **MOTORS OFF** on Page 3-6).

In the **CONTROL**/**Automation** menu there is a **Trim (rel)** or **Trim (0dB)** choice (stab to toggle). When set to **Trim (rel)** the fader will trim from its current physical position, ie. the point it goes into write sets the null level. When set to **Trim (0dB)**, the fader will move to the unity gain point automatically (not affecting the audio level) to allow trimming from a convenient physical position, with simple visual confirmation of the +ve or -ve trim with respect to the 0dB marking.

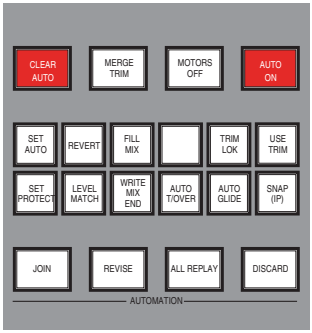
TRIM LOK: when active this causes the first null point – defined by the **Trim (rel)** or **Trim (0dB)** setting – to be stored and 'locked' for subsequent mix passes. If a **TRIM LOK** value is stored on a fader then the INFO display will show TLOK. Releasing **TRIM LOK**, using **AUTOGLIDE** or **AUTOTAKEOVER** will remove the null stored point.

Trimming Trims

Absolute and Trim data are handled separately by the HS processor. Trims can only be applied to Absolute data so, if a trimmed control needs additional trimming, the Absolute and Trim data must be combined to produce a new Absolute pass which can then be trimmed. This can be achieved in two ways: i) saving a mix to disk by saving the Project with **SAVE PROJECT** or **SAVE SELECTIVE**; ii) pressing **MERGE TRIM** which combines the Absolute and Trim data to produce a new Reference mix.

Important Note: using **MERGE TRIM** creates a Reference mix in RAM only. This is *not* saved to disk until the Project is saved with the Reference mix as the current mix.

Automation Tools for Large Faders



MOTORS OFF

This activates a non-moving fader 'VCA' style mode. It can be used at any time, even during a mix. Some features are designed specifically for use in **MOTORS OFF**:

LEVEL MATCH

This will only work when the motors are off. When pressed, any fader can be checked for the correct position with respect to the current mix – large faders will show the direction to move to the underlying mix level with an arrow in the INFO display, small faders will show a flashing **M** or **P** button.

MotorMatch™

While in **LEVEL MATCH**, pressing a fader status button will briefly enable that fader's motor to correct the physical position, and then return to **MOTORS OFF**. Similarly, deselecting **MOTORS OFF** will globally set all faders to their correct positions.

FADERS TO METERS

This button in the 'CH METERS' group displays the 'VCA' mix level of the faders (large or small, dependent on the selection of **METER LF** or **METER SF**). A permanently lit segment represents the 0dB position.

SNAP (IP) (Motors On only)

If **SNAP** is selected with the fader motors on, when a fader is touched it will drop into write as usual; when released it will move to the correct physical position and drop into replay. **SNAP** may be locally overridden by pressing the fader status button to drop the fader into write. Also, pressing the fader status button while your finger is on the fader will keep the fader in write but disable **SNAP**, so the fader will stay in write when you remove your finger. **SNAP** can be combined with **AUTOGLIDE** (see below).

IP – Immediate Pickup (Motors Off only)

Selecting **SNAP (IP)**, with **MOTORS OFF** lit, provides an Immediate Pickup feature for faders – any fader will now drop into write when moved, but *not* when just touched.

AUTOGLIDE

Selecting **AUTOGLIDE** enables a fader to ramp back to its replay position over a preset time, when it is being dropped out of write, allowing a smooth fade to the replay position instead of a jump; the fade is written to the mix. The time the fader takes to 'glide' back is set by stabbing the **Autoglide** box in the **CONTROL**/**Automation** menu; the time is set in frames.

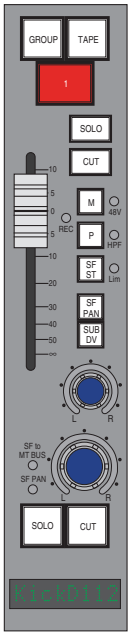
AUTO T/OVER

This will intercancel with **AUTOGLIDE** if selected. Autotakeover is effectively a manual Autoglide. When the fader is dropped out of write, an arrow will be shown in a large fader's INFO display, showing the direction the fader should be moved to match the replay level. When this level is reached, two arrows appear in the display; there is also a virtual 'notch' at the null point so you can feel the point at which the replay level is reached (unless in **MOTORS OFF**). The fader will automatically drop out of write when it matches the replay level, whether moved to the underlying mix level or if the automation data instantaneously matches that level.

Master Fader Level Match

The master fader is not motor-driven. If the physical position of the fader does not match its automated level (eg. after a Snapshot or Project load) the **ST** button next to the fader will be half bright. If the button is pressed *and held* then the fader will enter level match mode and the **abs** or **trim** LED next to it will flash to show the direction to move the fader to match the automated level. When both LEDs turn off (or on – subject to software version!), the correct level has been reached. Pressing the **ST** button again will exit level match mode.

Automating Channel Controls: Match and Play



To automate a rotary control or channel switch, simply turn it or push it. The change will be sensed and the **REC** LED next to the small fader (see right) will light to indicate that a channel control is writing data, and the **AUTO ON** button will flash on the Master Control panel.

Next to the small fader are two buttons: **M** (Match) and **P** (Play).

Match enables a channel control (rotary or switch) to be dropped into automation record *without changing its state*. This means that, for example, a pan can be dropped into record by turning it, without having to change its value; a cut can be dropped into write without changing its state.

When the **M** button is pressed and is lit, any control can be turned/pushed. This will drop the control into write at its current position or state. If the **M** button is pressed and held, it will flash; this indicates a latched state where any number of controls on that channel can now be dropped into record. If the **M** button is pressed twice in rapid succession ('double Match') then it will automatically drop *every* rotary and switch control on that channel into record.

Play enables a control to be dropped out of record without changing its value. Press the **P** button and any control *in record* can be dropped out by simply turning or pushing it. Press and hold the **P** button and it will flash, indicating a latched state where several controls may be dropped out of record, one after the other. Double pressing **P** will cause *all* the rotary and switch controls on that channel to drop out of record simultaneously. When all of a channel's controls have been dropped out of record, the **REC** LED will turn off.

Additional Front Panel Functions

JOIN

When pressed, **JOIN** recalls the levels/states of automated objects in write at the rollback point, and automatically drops them into write. This is very useful when finding levels for a particular section, eg. a chorus, and the desired settings are achieved toward the end of that section. When you rewind to the beginning of the chorus, the controls will not be in the correct position. If **JOIN** is pressed at the start of the chorus, then those controls that were in write at the rollback point will move/switch to their rollback setting and drop into write, giving the correct settings from the beginning of the chorus.

REVISE

Similar to **JOIN** except that objects that were in write at the rollback point simply drop into write at their current written levels/states. Useful for overwriting unwanted moves – roll back without dropping out and then press **REVISE** before the unwanted moves occur. The relevant controls will drop into write at their current settings and overwrite the previous moves.

FILL MIX and WRITE MIX END

These two functions change the automation mode of any controls that are manually *dropped out* of write whilst either of the buttons are flashing (ie. have been pressed). This allows the global mode of, say, the large faders to be Rollback/Join, while allowing some fader moves to be translated into Mix Fill or Mix End independently.

FILL MIX transforms any written data into **Mix Fill** mode (see Page 4-3), so that the level of the control at the point it was dropped out will be written to the end of the mix. **WRITE MIX END** transforms any written data into **Mix End** mode (see Page 4-3), so that all moves up to the point the control was dropped out will be written but everything thereafter will be written at a static level to the end of the mix.

After a rollback, the controls will revert to their respective modes as set in the **Automation Modes** (**SET AUTO** button) pop-up (see Page 4-3).

ALL REPLAY

Simply puts all controls into replay. Useful for dropping everything into replay without rolling back.

DISCARD

This button allows unwanted moves to be thrown away *before* a rollback. When any new moves are made, the **AUTO ON** button will flash indicating that a new mix will be written to RAM at the next rollback. **DISCARD** can be pressed while **AUTO ON** is flashing, and this will empty the RAM buffer; **AUTO ON** will stop flashing, and any control in write will return to replay, so no new mix data will be written at the next rollback.

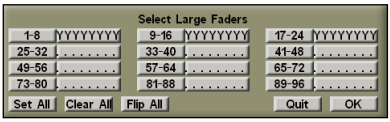
Off-line Functions

Off-line Trim

Any number of mixes with different fader trims may be created for immediate comparison, without having to play the mix through. The whole mix may be trimmed or only a part of it (eg. a chorus). Any number of faders from one to all maybe selected for trimming. The mixes created will be trim mixes; to make them Reference mixes either make them the current mix and save the Project, or use **MERGE TRIM**.

Select **CONTROL**/**Automation**/**Offline Trim**:

Choose the relevant faders to trim by stabbing on **Large Faders**, **Small Faders**, **Group Faders** or **M Fader** (this will toggle between a cross and a tick to indicate inclusion in the trimming). Any of the selections (except **M Fader**) will present a fader selection pop-up:



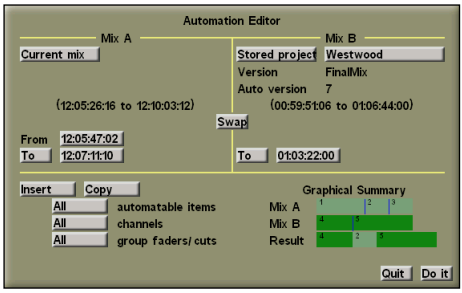
Choose the necessary faders by either stabbing the relevant boxes on the pop-up or by pressing the faders' 'attention' buttons.

Set the start and end times of the section to be trimmed by stabbing the **Start Time** and **End Time** boxes. These will default to the mix **From:** and **To:** times as seen above the mix list. When the **Start Time** and **End Time** boxes are stabbed the Events List (if used) will be displayed for ease of selection. Locate to just before the trim start time.

You have a choice of fixed **-1dB** (left cursor), **+1dB** (right cursor), **-0.1dB** (down cursor), and **+0.1dB** (up cursor) trims selected by simply pressing the appropriate cursor key or by a click/stab on the appropriate box. The trim will be carried out as soon as you do this. Alternatively, enter the required trim value in dB, between -10 to +10 dB to two decimal places, by clicking/stabbing on the **Value** box. To enter a negative trim, either press **-**, enter the value and then hit **=**, or enter the value and click/stab on the **Ng** box. If you enter a figure via the **Value** box, click/stab on **Do Trim** to effect the trim.Trims may be carried out while the mix is playing so you can hear the immediate effect.

Stab outside the pop-up to clear it and save the trimmed mix. This will be prefixed by an **O** in the mix pass list.

Off-line Automation Data Editing



Select **CONTROL**/**Automation**/**Edit Auto**. Choose the mix to edit by stabbing the relevant boxes at the top of the Mix A and Mix B sections. Depending on the edit type (see below) these can both be the current mix, or the current mix and a saved mix in any Project. Edit types are chosen by stabbing in the box on the lower left of the pop-up. Some of the edit types have alternative modes of operation as set by the box to the *right* of the edit type box. The edit types are:

Copy – Allows a section of one mix to be copied to a different position in the same mix, or to a different mix. **Insert** extends the new mix by the duration of the copied section, with no material overwritten. **Overwrite** makes the copied section overwrite its destination, retaining the existing mix length.

Move – Allows a section *of the current mix only* to be moved to another part of the same mix. **Insert** allows the destination (Mix B **To** time) not to be overwritten. This is useful for swapping two adjacent sections of automation data, for example, two verses of a song. **Overwrite** will remove the automation data at the destination (Mix B **To** time) and shorten the mix by the length of the section that has been moved.

Butt Join – Always carried out between two different mixes. Joins the stipulated part of Mix A to the Mix B **To** time.

Remove – This has two modes of operation: **Remove Section** allows an entire section to be removed and the mix will be shortened accordingly. **Remove Automation** removes all dynamic moves from a section and replaces them with their values at the beginning of the removed section. The mix length will remain unchanged.

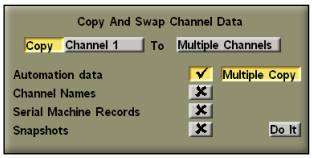
Insert – Inserts 'automation silence' to lengthen a mix when you need to accommodate new audio material. The static values of the controls will be extended for the period of the insert time.

A graphical summary is provided on the lower right of the pop-up to indicate the various edit types and the result of their application. Beneath the edit types selection boxes are choices for which channels and controls are to be edited; stab on the boxes to make a selection. The default condition is that the data for all channels, all controls and all groups will be edited.

Any mix edited in this manner will create a new mix pass prefixed by **J** in the mix pass list.

Automation Copy/Swap

Automation data can copied or swapped between channels. Go to **CONTROL/Overview** and stab on **Copy/Swap**.



Select the data to be copied or swapped by ticking **Automation Data**, **Channel Names**, **Serial Machine Records** (record enable mapping) and/or **Snapshots**. Stab on **Copy** to toggle between **Copy** and **Swap**. Stab on **Channel 1** to change the channel to copy from, and enter a number on the numeric calculator. With **Single Copy** selected, stab on **Channel 2** to change the channel to copy to. To copy or swap to multiple channels, stab on **Single Copy** to toggle to **Multiple Copy** (see above) and then stab on **Multiple Channels** above to choose the required channels. Finally, when you are ready to copy, stab on **Do It**, and the data will be copied/swapped.

If you choose to copy/swap **SnapShots** then *all* of the entries in the **CONTROL/SnapShots** list will be revised with the new copied or swapped data. Copying snapshots can be useful if you want to duplicate aux settings across the console.

Machine Control

This section provides a rapid operational overview of some the machine control and setup facilities available on MT Plus and MT Production.

If machines are changed regularly, then a basic knowledge of the machine control system is necessary. Machine control, especially issues with Sony 9-pin protocol, can be complex. This section only provides a basic overview of some of the system capabilities. It is strongly recommended that any major changes be undertaken using the full MT Plus or MT Production Operator's Manual, Sections 6 and 9, or with help from an SSL Service engineer.

Once a machine has been set up, settings can be recalled on boot-up or with a Project load. The only things that need be done are to match desk timecode to machine timecode, and then control the machines using the many different location and transport facilities on the console.

General Principles

There are two modes of operation – synchronous control and asynchronous control.

With synchronous control each connected machine resolves to a common sync reference at play speed. Up to four serial (RS422) devices can be connected at any one time, with on-screen 'Lock' flags to indicate synchronous play. The system allows each of the four serial ports or desk time to provide the master positional reference.

Asynchronous control is only supported by the parallel 'Directly Controlled Tape Machine' (**DCTM**) interface. It requires continuous LTC timecode from the master device at play speed.

The console requires a video sync source for system timing. Any serially controlled machines or digital tape machines *must* be fed with the same video sync signal and set up for External Video Sync or the equivalent. Also there will be a 'Sync Play' option or equivalent on the machine which must be enabled. Many common digital recorders will accept 9-pin control commands without a sync reference but they will not be synchronous, and lock will not be achieved. Sync reference from a 'black and burst' house sync generator is suitable.

Dependent upon the local standard, the sync rate will be either be NTSC (525) or PAL (625). *If the work to be done necessitates a change of sync rate then the console will have to be rebooted.* Check the video sync reference the system is set to via: **MISC**/**System**/**Diagnostic**/**Status**.

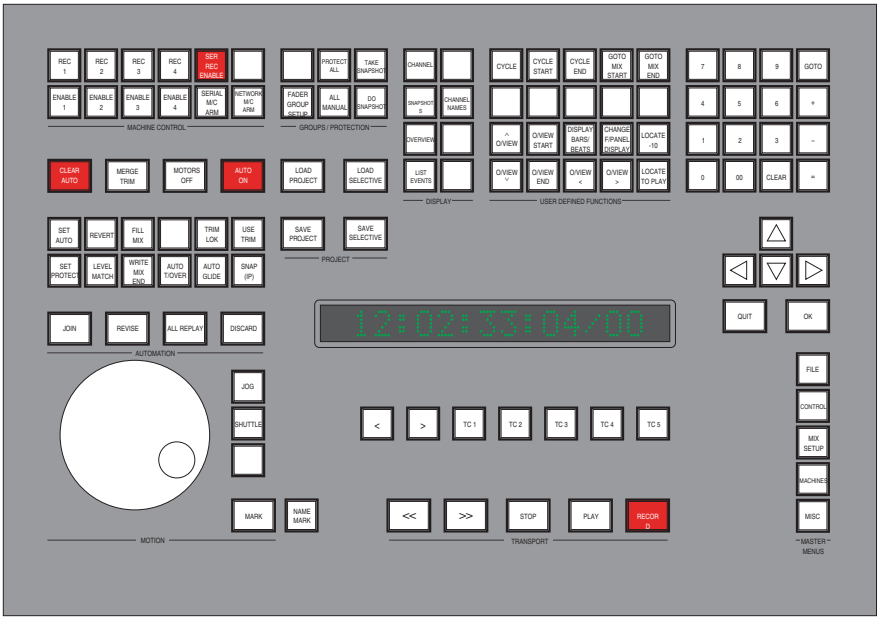
It follows that any timecode standard that the system is set to should match the video sync rate. Timecode standard is set up in **MISC**/**System**. This is very important for automation accuracy. Choose from: **29.97fps DF**, **29.97fps NDF**, **30fps NDF** = NTSC (525) or **25fps** = PAL (625).

Finally, **MISC**/**Lock Clk** should always be set '**to Video**'.

One **DCTM** machine, plus up to three serial machines, can be synchronised. In this case, the **Video Lock LTC Input** option must be ticked in the **MACHINES/TC Gen** pop-up; only when this is selected can a **DCTM** machine resolved to video be used as a synchronous desk reference.

The console has a timecode reader with four switchable inputs. The timecode generator can generate video-referenced LTC and MIDI TC locked to the desk position. For timecode input/output connections see the MT Plus/MT Production Installation Guide. For timecode generation see Page 5-7.

Using the Transport Controls



On the top left corner of Master Control panel are a group of twelve buttons that activate any machines that have been set up on the machine control ports. There are four transport enables (**ENABLE 1** etc.) and four record enables (**REC 1** etc.). These in turn are enabled by the master enable buttons: **SERIAL M/C ARM** and **SER REC ENABLE**. All these buttons duplicate the functions of the equivalent pen stabs on the **MACHINES**/**Serial** display (see Page 5-4).

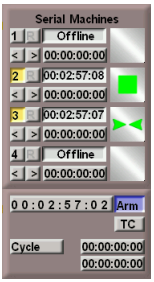
Once the machines have been enabled, the transport control buttons on the Master Control panel can be used. Above them are five timecode locate buttons (**TC 1 - 5**) which allow fast locates to any specified timecode point. Press and hold a **TC** button while positioned at the required spot, the button will flash and that timecode value will be stored; a quick press performs the locate. **TC** locate points are stored in the Project.

The **<** and **>** buttons can be programmed to either jog frames or Events as listed in the Events List. The choice is made in the **MISC**/**Tools**/**Transport** menu.

The motion wheel can be used as follows:

Without **JOG** or **SHUTTLE** selected, turning the wheel sets a locate target in the front panel timecode display. When the wheel is stopped, the machine will locate to that position. The timecode display will show Loc in front of the target value while the wheel is being moved. **JOG** and **SHUTTLE** can only be used with slaved Sony 9-pin machines, not with a **DCTM** machine connected to the parallel port; **JOG** will move the system backwards and forwards without setting a locate targe, and is disabled when the system is put into play. **SHUTTLE** creates a 'null' position on the motion control wheel to which it returns after any movement left or right. Releasing **SHUTTLE** will stop the transport.

The **CONTROL** display provides local machine control facilities and indications (see right). Stabbing on the numbered boxes to the left of this area toggle the port off and on-line (duplicates the **Enable** buttons on Master Control panel). Any machine that is selected as Master will show an **M** instead of a number (see Page 5-6).



The top timecode readout on each port shows the current timecode position when that machine is on-line. The lower number displays any offset (see Page 5-7). The boxes to the right of this area display a series of icons indicating machine status (Sony 9-pin machines only) a sample of which are shown below:

 Still  Stop  Cued

 Locked  Unlocked

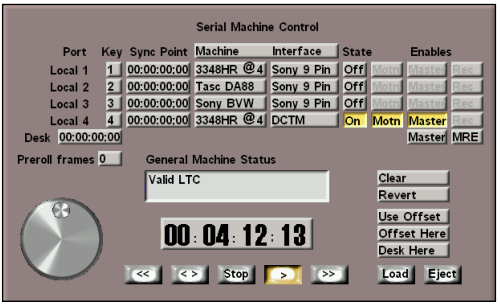
 Play; flashes when varispeeding  Reverse Play; flashes when varispeeding

 Fast Forward  Rewind

 Shuttle Forward, Reverse  Jog (rotates in selected direction)

Setting up Serial and Parallel Machines

The **MACHINES/Serial** display is at the centre of all machine control set up and options:



The four machine control ports are represented by four rows of boxes labelled **Local 1 - 4** in the upper half of the display.

Important Note: Do not attempt to change machine types and interfaces unless there is good reason for doing so. Usually the machines within the facility will have been set up by the SSL commissioning or training engineers, or the facility's own technicians. Always ensure that machines are off-line if any changes are made.

The **Machine** column lists any machine assigned to that port – Sony BVW, Tascam DA88 etc. To change to a different machine, stab on the box and choose from the list. If the machine you want is not there, choose the nearest machine to it – the chances are that the control parameters will be very similar.

The **Interface** column will show the control protocol associated with that particular machine, ie. one of the following:

Sony 9-Pin

The MT Plus/MT Production's primary method of machine control uses the Sony 'P2' RS422 remote protocol, employed by a wide variety of video machines, DAT, MDM, and DAWs with 9-pin emulation (eg. Pro Tools, Fairlight Merlin, Otari Radar etc).

Sony Slave

Emulates a device operating under Sony 9-pin control. Only one port can be in **Sony Slave** mode. Two modes of operation are possible:

i) The controlling device outputs basic transport commands and locks to the desk position returned from the Sony Slave port. This is quite a common method of interfacing to DAWs which have a single 9-pin port for controlling a serial machine. If the controlling device supports local operation of the connected machine, the interface is bidirectional so that the DAW follows the position of the desk and the DAW transport controls can remotely operate the desk. This mode supports additional Sony 9-pin machines on the remaining serial ports as well as a DCTM master or motionworker, provided all connected machines are set for synchronous operation.

ii) The controlling device synchronises the desk position to its own internal timeline. This can be used to interface to an external machine controller like Micro Lynx or motionworker.

VPR3

Only Port 4 can support **VPR3**. This provides an alternative to the RS422 9-pin control protocol, and is used primarily with TimeLine Lynx I/II synchronisers for parallel and bi-phase machine control.

DCTM

Parallel control of a tape machine using the five basic transport commands. Position is derived from LTC at play speed and a tach pulse at wind speeds. Connection to the tape machine is via a 25-way D-type 'Machine Control' port on the rear of the console processor. Timecode inputs and outputs are via the adjacent 25-way D-type 'Timecode' port (pinouts are in the MT Plus/MT Production Installation Guide).

MW DCTM

Interfaces with a motionworker machine controller. Basic transport commands and tallies use the DCTM port with the serial interface carrying machine status, offset and local target information.

LTC Slave

The desk follows play speed timecode from a locally controlled machine. All desk transport controls are disabled.

IMPORTANT

Stabbing on the **Interface** box for each machine will open up a **Machine Setup Options** pop-up. These list the parameters for different machines that are stored in a library at system level. In addition to these, the **Machine_Types** file themselves (text files associated with each machine) can be edited – these contain control constants which are loaded each time the machine is put on-line and enabled. Further description of these files is too complex an issue to include in this Shortform Guide. Usually, all that needs to be done is to choose a new machine from the list and the appropriate settings will be automatically loaded. For further information about **Machine_Types** files and **Machine Setup Options** either refer to Section 9 of the MT Plus/MT Production Operator's Reference Manual or contact your nearest SSL representative.

To the right of the **Interface** boxes are four columns of functions for each of the serial ports: **State**, **Motion**, **Enables** and **Rec**.

State will show whether a machine is **Off** or **On** line. This duplicates the equivalent **ENABLE** button on the Master Control panel.

When **Motn** is selected, and if a machine has been interfaced correctly to that port, then its current timecode position will appear in the box in the lower half of the **Serial** display. The machine can then be controlled independently from either this display using the virtual controls, or via the front panel transport buttons. The window below **General Machine Status** displays useful feedback, for instance, **Valid LTC** etc. The message **No comms** may appear if the machine is switched off, disconnected or otherwise unavailable. **Motn** must be deselected in order to synchronise all the machines currently on-line.

The next column, **Enables**, has five **Master** boxes. The top four are for each of the control ports, the lowest one is for the desk. Stabbing on a box makes the relevant machine (or the console) the Master of the system (selecting **DCTM** as a machine interface automatically makes that machine the Master.) Generally if there is one Sony 9-pin machine connected it is best to set that machine as the Master, as this will provide the quickest and most reliable lock-ups. In this mode, when Play is pressed on the desk, the Master machine will go into play followed by the desk. In other words, automation timecode will be read from the Master machine. If any additional machines are connected, then the synchroniser will attempt to lock them to the desk position.

The other option is to make the desk the Master by stabbing the lowest of the **Master** boxes. When this is the case, cue the material (using **Motn**) and then stab **Desk Here** in the lower right of the display. This will set the desk to match the material's relevant sync point, otherwise when the machine is synchronised (**Motn** off) it will locate to whatever the desk timecode is set to, since the desk is the positional Master.

Stabbing on the **Machine Interface** bar toggles the columns below to **Position** and **Error** (or **Locked**) for each of the four ports. This is useful when using **Offsets** (see Page 5-7).

Record Arming

Individual tracks on a multitrack machine may be set for record arming via the console's channel record buttons. The relationship between channels and tracks is set up on the **MACHINES/MT Setup** pop-up. Before a machine can be put into record from the master transport **PLAY** and **RECORD** buttons, it must be armed by the appropriate **REC** enable button on the Master Control panel.

The **REC 1** to **REC 4** buttons duplicate the **Rec** boxes on the right of the **MACHINES/Serial** display. The **SER REC ENABLE** button is a master record enable which must be pressed to allow individual **REC** buttons to arm the associated machines. This is duplicated by the **MRE** box on the **Serial** display.

Using Offsets

Offsets may be set up between machines, or between a machine and the desk.

Offset Here enters the offset *between* the Master and the machine under **Motn** (ie. local) control, into the relevant **Sync Point** box. For example, if a master machine is at 10:00:00 and the slave is cued up to 10:03:00 using **Motn**, stabbing on **Offset Here** will enter a **Sync Point** value of 00:03:00.

Use Offset takes the *current machine position* using **Motn** (eg. 10:00:00) and enters it as the **Sync Point** for that machine (eg. the **Sync Point** will now show 10:00:00). The most common use for this is when you want the material to be cued from 00:00:00 on the desk. For example, you cue up a video tape to the start of the material (10:00:00) , stab **Use Offset**; drop the video off-line and then cue up the audio (eg. 10:03:00) and stab **Use Offset.** The desk will start at 00:00:00 with the machines showing offsets of 10:00:00 and 10:03:00 respectively.

On the **CONTROL** display, any offsets are shown in the boxes beneath the machines' current position boxes. They may be nudged a frame at a time using the **<** and **>** buttons to their left, or the offset can be modified by stabbing on it with the pen and dragging the hours, minutes, seconds or frames up or down.

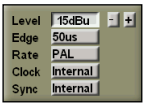
Timecode Generation

The console can generate video-referenced LTC and MIDI TC, locked to the desk position in all synchronous machine control modes. The timecode output is *not* valid when running asynchronous DCTM or timecode slaving.

With a synchronous master, the timecode output can be used as a master reference for external machines with built-in timecode chase synchronisers.

Select **MACHINES**/**TC Gen**:

Check the settings by stabbing **Setup**. The generator output **Level** can be set in 3dB steps between -9 and +24 dBu by stabbing on the **-** and **+** boxes. The **Edg**e box can be toggled to select the rise time for code you want to generate **50*µ*s** (PAL) or **25*µ*s** (NTSC).



Rate provides four choices:

Curr sets the timecode output to the system standard as set up in the **MISC**/**System** menu; Select **PAL** for 25 fps; select **NTSC D** for 29.97fps dropframe, or **NTSC N** for 29.97fps non-dropframe. The **24Hz** and **30Hz** options are not supported at the time of writing this guide. **Clock** and **Sync** should be set to **Internal**.

After making any changes to the **Setup** pop-up, save them by stabbing **Save** on the main **TC Gen** pop-up .

The timecode generator is enabled when the box next to **LTC Enabled** is ticked. The generator will send a continuous stream of stationary code when stopped. This can be reduced to between 1 and 10 seconds of stationary code by stabbing on **Generate when Stopped** and selecting the required time.

When the desk is put into Play, the timecode will follow desk time. Any offset required between desk time and generated time can be set by stabbing on **Offset** and entering a time on the timecode calculator (this will also create an offset between LTC and MTC).

Enable MTC with a tick next to the **MTC Enabled** box. Set any independent MTC offset by stabbing on **Offset**. **Zero Now** sets an offset so that the current MTC value is 0:00:00, whatever the desk time. **Time Now** sets the MTC value to be the same as the current desk timecode. Selecting a tick for **Control** enables MIDI data *and* MTC (if enabled) to be fed to the MIDI 1 - 4 sockets on the console processor's connector panel.

IMPORTANT

The **TC Gen** pop-up also provides a **Video Lock LTC Input** option. This should ***only*** be ticked (selected) when the incoming LTC from a DCTM machine or synchroniser has been ***resolved to video.*** Selecting **Video Lock LTC Input** tells the system that the incoming LTC is synchronous, and can be used as a desk reference. When this is the case, up to three 9-pin machines can be synchronised, and the timecode generator output ***is*** valid. Additionally, a 9-pin controller connected to a port in **Sony Slave** mode will follow the received timecode position.

Group, Tape, Stereo and Record Flags

Digital peak scale; '0' point corresponds to 0dBFS,

Channel Input Routeing section

Channel input source display

These nine source groups allow any system input to be routed to either Small or Large Fader signal paths

The bank buttons A, B, C and D access up to 120 sources from each group

LF and SF keys – determine which channel(s) and which path(s) will be assigned a source or routed to a bus

Dynamics processing: Dynamics settings can be copied from one channel to another using the CPY key. LOAD key is used to access user-defined presets

Dynamics feed-forward delay

Use the GATE button to switch between Compressor/Limiter and Gate/Expander sections

Dynamics IN/OUT key; press and hold to reset the Dynamics section

Indicators show Gate/Expander activity and amount of compression

Channel Insert point may be pre or post processing

Press and hold IN to select Insert routeing

12 Aux Sends are available from both the Small and Large Fader signal paths. Auxes may be used as individual mono sends, or any pair may be linked (from centre section) to form a stereo send

Select SET PRE followed by the Aux 'On' button(s) to switch between Pre and Post fader aux sends

Controls are switchable between Auxes 1-6 and 7-12 for each fader path

SET EFX – allows aux sends to be routed to any of the 48 MT Buses

Small Fader Solo and Cut buttons

Motorised Small Fader

Match and Play switches used to drop-in or out of write on all automated controls and switches. The REC LED indicates that a control is in write on the channel strip

Small Fader Status button

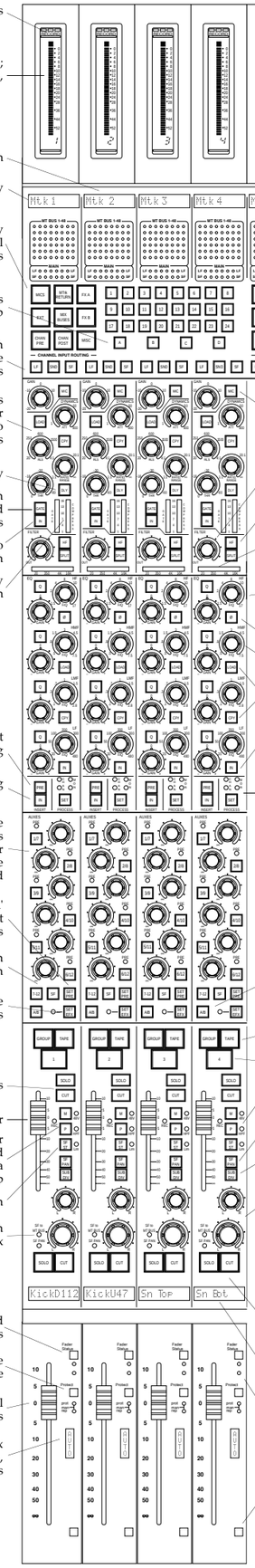
Indicates that the Small Fader path is feeding the MT Routeing Matrix

Large Fader Status button and automation status LEDs

Sets automation protection modes for the channel. LEDs indicate selected mode

Motorised Large INFO Fader with virtual detent for automation null points

Information window shows mix level null point, protection mode, and grouping assignments



Channel Output (Bus) Routing section

Bus routing display. Indicates routing to the 48 MT Buses, and routing to the 12 Main Buses (displayed as 6 bus pairs) from the Large and Small Faders; centrally controlled

Nine pan format switches provide the ability to route in Mono, Stereo or any Surround format (up to 5.1)

Buttons access Main Buses 1-12, MT Buses 1-24 *or* MT Buses 25-48.

SND key - used to access the Track Send source (GROUP Monitor Input), allowing any input to be recorded directly to tape

Digital level trim or remotely controlled analogue mic preamp gain

High and Low pass filters. Filters follow EQ, unless the SPLIT button is used to fix the Filters to the Channel input

The HF button switches between controlling the Low or High Filter roll-off frequencies

Indicates Filter roll-off points

4-band EQ with overlapping High, High Mid, Low Mid and Low Frequency sections

Channel input phase reverse key

Switchable Frequency/Q control

EQ settings can be copied from one channel to another using the CPY key. LOAD is used to access user-defined presets

EQ IN/OUT key; press and hold to reset the EQ section

Indicates signal processing order for EQ (Green) and Dynamics (Red). Use the SET button to cycle through the processing order options

Switches the control surface between Layer A and Layer B, when channel banking is active

GROUP and TAPE switch the Monitor Input between Track Send and Return

Record enables the multitrack machine

Indicates Mic Amp phantom power, HPF and Limiter settings

Switches pans between Large and Small Fader in Surround mode

Used to select control of Divergence or level to the Subwoofer bus

Pan controls support Stereo or Surround panning (up to 5 channel):

STEREO – Small Fader Pan and Large Fader Pan

SURROUND – Left/Right and Front/Rear Pan controls switchable between the Large and Small Fader sections

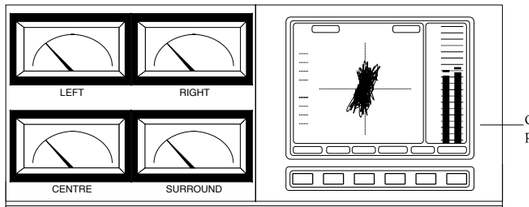
Large Fader Solo and Cut buttons. The Solo button can act as destructive Solo-in-place, Solo in Front, AFL, or PFL, switchable from the centre section

Electronic scribble strip displays fader name and grouping assignments

In Group Setup mode, these buttons are used to assign Masters and Slaves

Dedicated channel 'attention' button

82S6MMT010A



Solid State Logic

MT Plus

Digital Multitrack Console

Oscillator and talkback controls

Channel Meter select modes include PPM or VU scale selection and peak hold facilities

Meter Select buttons switch any group of sources to the 8 LCD centre section meters, and selected sources to the channel meters

Two 12 way external monitor selector banks monitor any preprogrammed system source. Each selection may be up to 6 channels wide for stereo or full surround external monitoring

Master Output Compressor, up to 6 channels wide for multichannel Main outputs

LINK allows the banks to operate as one 24-way external selector. SUM provides the ability to sum up to three sources

Selects an 8-channel external insert point, pre the Master Fader

Master Status switches instantly configure the console for Recording, Mixdown or Overdubs; selection of master channel pan display modes; automatic delay compensation feature for use when mixing.

Individual loudspeaker cuts

Switchable level control for Solo in Front or AFL/PFL, Master Fader Offset, Monitor Dim, Listen Mic, Talkback to Foldback and Talkback to SLS levels

Motorised Master Fader and automation Status button

Selects External Monitor bank 1 or 2

Monitor Mode selections for Stereo/Surround monitoring

Master Solo Modes

Monitor level

Main to Mini switching

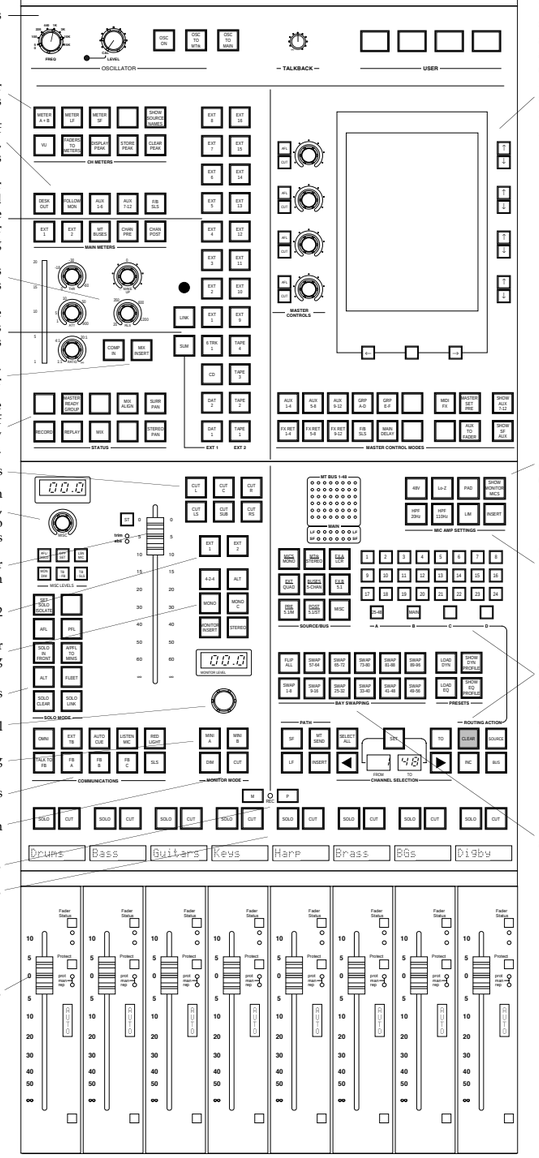
Talkback and Communications

Monitor Cut and Dim

Group Cut Match and Play switches

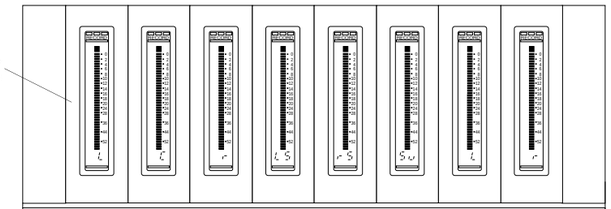
Group Fader Solo and Cut buttons

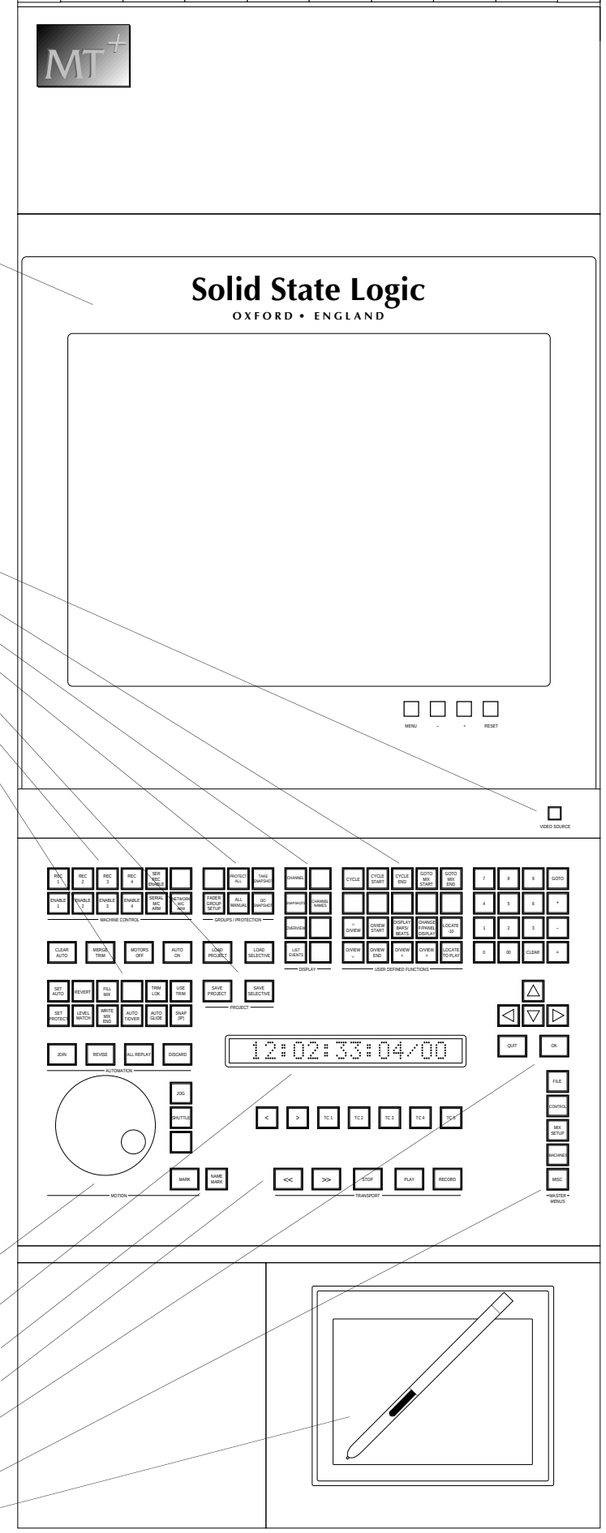
Motorised INFO control group faders



Eight switchable LCD meters fed by the 10 main meter selector buttons

Optional Phase scope and VU meter panel. Can be fed from any system output





Flat screen display, with user-adjustable angle, provides a clear local display of console parameters

Master Audio Control Panel:

Control of Aux Masters, FX Returns, Foldback and SLS levels. Any four functions may be assigned to the rotary controls and main display. Each audio output has level, CUT and AFL control. Sources and destinations for each output may also be assigned from this panel

+ MIDI control of external devices

+ Bus alignment for time domain compensation

Selects an alternative video source to the console screen

Twenty user defined 'macro' functions, saved as part of the session project

Master control and display functions

Function switches for setting up fader groups and automation protection modes

Front panel access keys for saving and loading session projects

Master Enable buttons for up to four serially controlled machines *or* one parallel port

Master Automation status controls and mix tools

The Central Assignment Panel provides centralised access to input and output (bus) routing, remote mic amp controls, and channel presets

Selection of Mic Input settings including phantom power, high pass filters, impedance, pad and limiter

A single channel, or range of channels, may be chosen using the channel selection controls; input sources, insert sends, track send sources, or bus assignments may then be made for either Large or Small Fader paths on the selected channels

Master controls for channel banking and bay swapping.

Jog wheel for rapid location of computer and slave machines

Large display of current master machine timecode position

Mark keys for defining and naming Cue points

Transport control and 5 instant locate keys

List cursor keys and OK, QUIT buttons for confirming or discarding operations

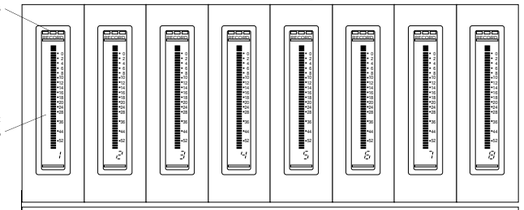
Master menu buttons

Dedicated pen and tablet interface for access to all on-screen functions

Solid State Logic • MT Production • Digital Multitrack Production Console

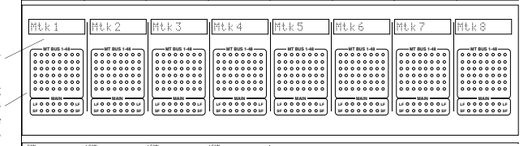
Group, Tape, Stereo and Record Flags

Digital peak scale; '0' point corresponds to 0dBFS



Channel input source display

Bus routing display. Indicates routing to the 48 MT Buses and 12 Main Buses (displayed as 6 bus pairs), from the Large and Small Faders



Dynamics processing: Dynamics settings can be copied from one channel to another using the COPY key. LOAD key is used to access user-defined presets

Dynamics feed-forward delay

Use the GATE button to switch between Compressor/Limiter and Gate/Expander sections

Dynamics IN/OUT key; press and hold to reset the Dynamics section

Indicators show Gate/Expander activity and amount of compression

Digital level trim or remotely controlled analogue mic preamp gain

High and Low pass filters. Filters follow EQ, unless the SPLIT button is used to fix the Filters to the Channel input

The HF button switches between controlling the Low or High Filter roll-off frequencies

Indicates Filter roll-off points

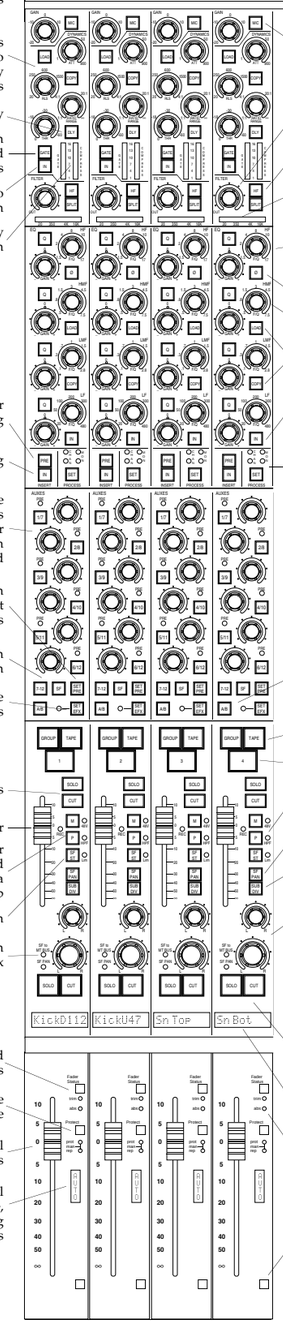
4-band EQ with overlapping High, High Mid, Low Mid and Low Frequency sections. 4 different user-selectable EQ algorithms are available

Channel input phase reverse key

Switchable Frequency/Q control

EQ settings can be copied from one channel to another using the COPY key. LOAD is used to access user-defined presets

EQ IN/OUT key; press and hold to reset the EQ section



Channel Insert point may be pre or post processing

Press and hold IN to select Insert routeing

Indicates signal processing order for EQ (Green) and Dynamics (Red). Use the SET button to cycle through the processing order options

12 Aux Sends are available from both the Small and Large Fader signal paths. Auxes may be used as individual mono sends, or any odd/even pair may be linked (from centre section) to form a stereo send

Select SET PRE followed by the Aux On button(s) to switch between Pre and Post fader aux sends

Controls are switchable between Auxes 1-6 and 7-12 for each fader path

SET EFX – allows aux sends to be rerouted to any of the 48 MT Buses

Switches the control surface between Layer A and Layer B, when channel banking is active

GROUP and TAPE switch the Monitor Input between Track Send and Track Return

Record enables the multitrack machine

Small Fader Solo and Cut buttons

Motorised Small Fader

Match and Play switches used to drop-in or out of write on all automated controls and switches. The REC LED indicates that a control is in write on the channel strip

Small Fader Status button

Indicates that the Small Fader path is feeding the MT Routing Matrix

Indicates Mic Amp phantom power, HPF and Limiter settings

Switches pan pots between Large and Small Fader in Surround mode

Used to select control of level to the Subwoofer bus and Divergence

Pan controls support Stereo or Surround panning (up to 5.1 channel):

STEREO – Small Fader Pan and Large Fader Pan

SURROUND – Left/Centre/Right and Front/Rear Pan controls switchable between the Large and Small Fader sections

Large Fader Status button and automation status LEDs

Sets automation protection modes for the channel. LEDs indicate selected mode

Motorised Large INFO Fader with virtual detent for automation null points

Information window shows mix level null point, automation mode, protection mode, or grouping assignments

Large Fader Solo and Cut buttons. The Solo button can act as destructive Solo-in-place, Solo in Front, AFL, or PFL, switchable from the centre section

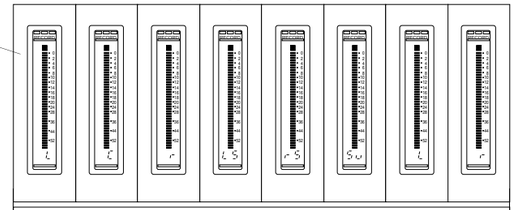
Electronic scribble strip displays fader name and parameter values

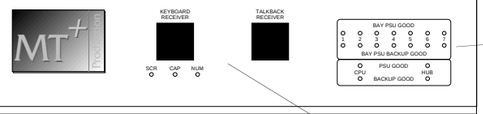
In Fader Group Setup mode, these buttons are used to assign Masters and Slaves

Dedicated channel 'attention' button

82S6MMP010A

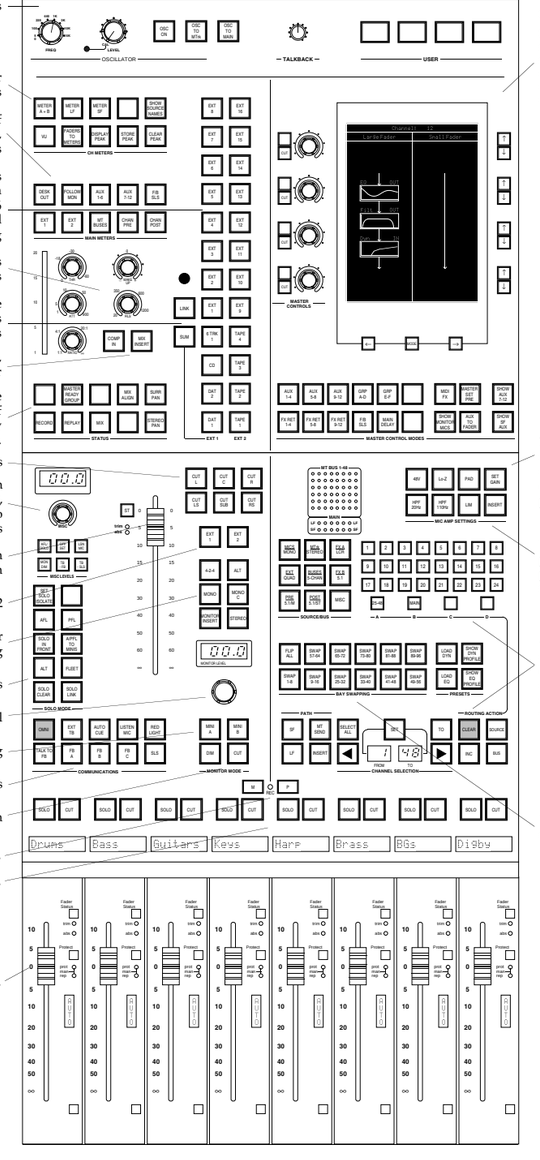
Eight switchable LCD meters fed by the 10 main meter selector buttons





Status indicators for the optional PSU redundancy system

Oscillator and talkback controls



Channel Meter select modes include PPM or VU scale selection and peak hold facilities

Meter Select buttons switch any group of sources to the 8 LCD centre section meters, and selected sources to the channel meters

Two 12-way external monitor selectors monitor any preprogrammed system source. Each selection may be up to 6 channels wide for stereo or full surround external monitoring

Master Output Compressor, up to 6 channels wide for multichannel Main outputs

LINK allows the banks to operate as one 24-way external selector. SUM provides the ability to sum up to six (3+3) sources

Selects an 8-channel external insert point, pre the Master Fader

Master Status switches rapidly configure the console for Recording, Overdubs or Mixdown; selection of global channel pan display modes; automatic delay compensation feature for use when mixing.

Individual loudspeaker cuts

Switchable level control for Solo in Front or AFL/PFL, Master Fader Offset, Listen Mic, Monitor Dim, Talkback to Foldback and Talkback to SLS levels

Master Fader and automation Status button

Selects External Monitor bank 1 or 2

Monitor Mode selections for Stereo/Surround monitoring

Master Solo Modes

Monitor level

Main to Mini switching

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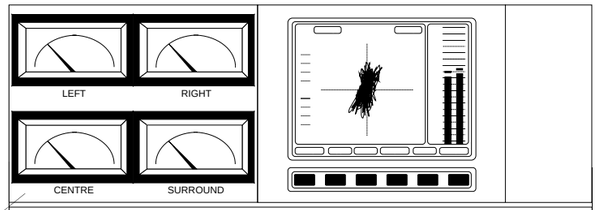
Monitor Cut and Dim

Group Cut Match and Play switches

Group Fader Solo and Cut buttons

Motorised INFO control group faders



Optional Phase scope and VU meter panel. Can be fed from any system output

Flat screen display, with user-adjustable angle, provides a clear local display of console parameters

Infrared receivers for optional wireless keyboard and handheld talkback remote control

Central Assignable Control Panel:

Control of Aux Masters, FX Returns, Foldback and SLS levels. Any four functions may be assigned to the rotary controls and main display. Each audio output has level and CUT control. Sources and destinations for each output may also be assigned from this panel.

+ MIDI control of external devices

+ Bus alignment for time domain compensation

Selects an alternate XVGA video source to the console screen

Twenty user defined 'macro' functions, saved as part of the session project

Master control and display functions

Function switches for setting up fader groups, and automation protection modes

Front panel access keys for saving and loading session Projects

Master Enable buttons for 4 machine control ports (parallel *and* multiple serial interfaces)

Master Automation status controls and mix tools

The Central Routing Panel provides centralised access to input (source) and output (bus) routing, channel inserts, remote mic amp controls, and channel presets

Selection of Mic Input controls for phantom power, impedance, pad, analogue gain, high pass filters, analogue limiter and optional analogue insert.

A single channel, or range of channels, may be chosen using the channel selection controls; input sources, insert sends, track send sources, or bus assignments may then be made for either Large or Small Fader paths on the selected channels

Master controls for channel banking and bay swapping.

Jog wheel for rapid location of computer and slave machines

Large display of current master machine timecode position

Mark keys for defining and naming Cue points

Transport control and 5 instant locate keys

List cursor keys and OK, QUIT buttons for confirming or discarding operations

Master menu buttons

Dedicated pen and tablet interface for access to all on-screen functions