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INTRODUCTION

System Information

The 88RS is an 'in-line' monitor type console.

Each channel strip contains all the facilities necessary for multitrack recording, overdubbing and mixdown.

The console has the powerful feature of split operation - i.e. the console can be operationally divided into two halves (to the left and right of the master control panel) with independent status control and split mix busses.

Surround sound is built in. This means that the I/O module pan pots have both LCR and LR (stereo) pan laws and that there are dedicated surround mix busses, monitoring and metering features.

Mix busses, metering and monitoring are configured for stereo, LCRS, 5.1 or 7.1 in a single action using switches on the central re-assign panel.

Standard 88RS consoles are capable of stereo, LCRS and 5.1 operation. 7.1 format mixing requires the optional "SP" scoring panel.

88RS uses AMS Neve's cross platform Encore automation system with a fully integrated recall system for storing and recalling control positions. Encore and the recall system are fully described in a separate user manual.

In addition to dynamic automation and recall, Encore assists in console configuration tasks such as overdubbing. The console can also run manually without Encore.

Power Up and Power Down Sequence

Power Up Procedure:

Switch the Encore PC on:

- ☐ There is a rocker on / off switch on the rear of the unit. Ensure this is set to '1'
- ☐ Press the red button on the front of the unit so it illuminates steady.

The PC will start to boot. Log on when required.

Switch the MCS unit on:

- ☐ Press the red switch on the front of the unit so it illuminates steady.

The MCS unit will start to boot.

Power up the console:

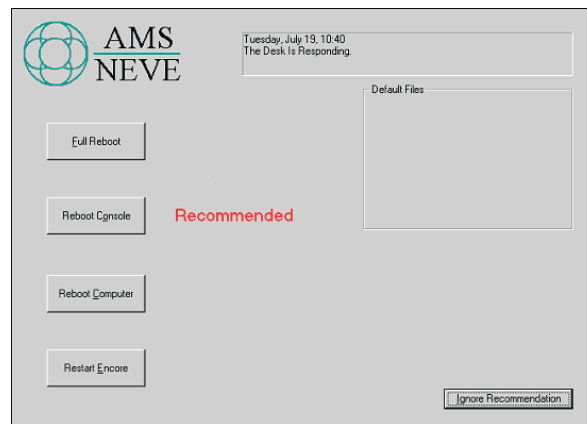
There are 4 power supplies that power the console:

- ☐ Switch analog supply 1 on (this powers the Left side of the console and the centre section)
- ☐ Switch analog supply 2 on (this powers the Right side of the desk)
- ☐ Switch automation supply 1 on.
- ☐ Switch automation supply 2 on.

Lastly, press the 2 red switches on the automation power supplies so they illuminate steady (these two switches power the fader motors).

When the desk has been powered up correctly, the meters will exercise across the entire width of the console.

Depending on how your hardware is set up, you may now see a grey screen recommending that the console be rebooted.

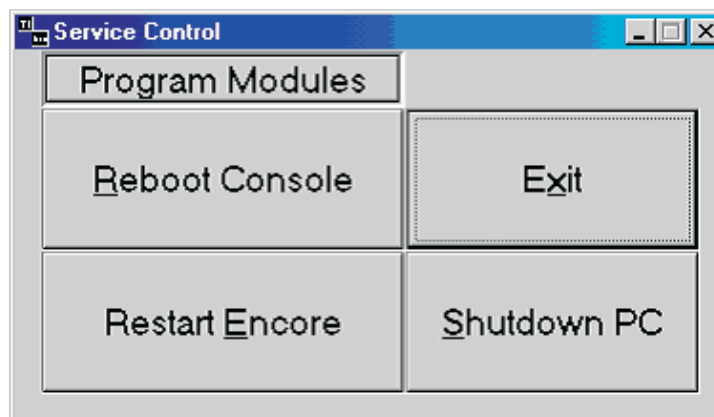


Click Reboot Console. The console will reboot.

When it has finished, double-click the Encore icon on screen.

Encore will open and the system will be ready to use.

If you do not see the grey screen shown above, double-click Servic eControl on the desktop (it can also be found in C:/Encore).



Select Reboot Console.

Once the console has finished booting double click on the Encore icon on the desktop.

Encore will open and the system will be ready to use.

NB:

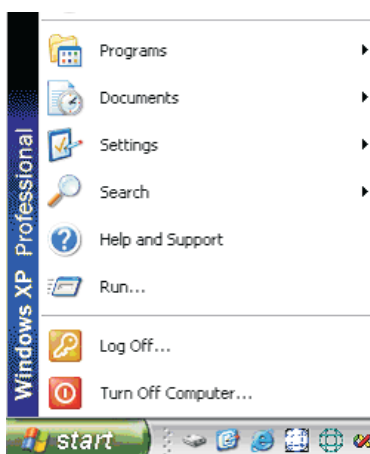
Failure to observe the correct power-up sequence can cause:

- ☐ Loss of audio
- ☐ The Reassign panel to not boot correctly (causing unpredictable audio on the busses)
- ☐ Inability to log onto automation
- ☐ General failure of the automation system

Power Down Procedure

Exit Encore. When asked "Do You Want To Close All Other Encore Components As Well?", click Yes.

In Windows, go to 'Start / Turn Off Computer...' from the Start menu.



You will be informed when it is safe to turn the computer power off - do this by setting the rocker switch on the back of the Encore unit to '0'.

- ☐ The red button on the front of the unit will extinguish.
- ☐ Turn off the MCS rack via the red button on the front.
- ☐ Turn off the fader motors (the two illuminated switches on the front of the automation power supplies).
- ☐ Turn off both automation supplies.
- ☐ Turn off both console supplies.

NB:

Failure to observe the correct power-down sequence can cause:

- ☐ Mechanical damage to the faders.
- ☐ Catastrophic failure of the Operating System.

CONSOLE CONFIGURATION

Signal flow through the console can be tailored for recording, mixdown and overdub tasks using central master controls in conjunction with local channel switches. This section of the manual outlines the basic configurations.

Two distinct signal paths are processed by each input module.

The channel path handles input sources during recording and tape playback during mixdown.

The monitor path is used primarily for monitoring multitrack sends and returns when recording and for effects sends or returns during mixdown.

The monitoring path can also provide additional tape inputs for large mixdown operations.

The various I/O module sections can be switched between the two paths, allowing the operator to configure each path with the optimum processing.

Input selection and output routing for the I/O module paths are normally determined by console master status controls.

Multitrack Recording

Input mic or line A signals are fed via the channel path and large fader to the multitrack routing matrix.

The inputs can be processed using the high and low pass filters, equaliser and dynamics units.

The equaliser is normally in a post-dynamics position in the signal paths but can be switched to be pre-dynamics.

The channel path can be routed directly to the track send of the same number or routed to the multitrack busses to form part of an audio subgroup.

An input channel can also be used as a group output channel by pressing the GRP button, allowing EQ and other processing to be applied to the group output to the track.

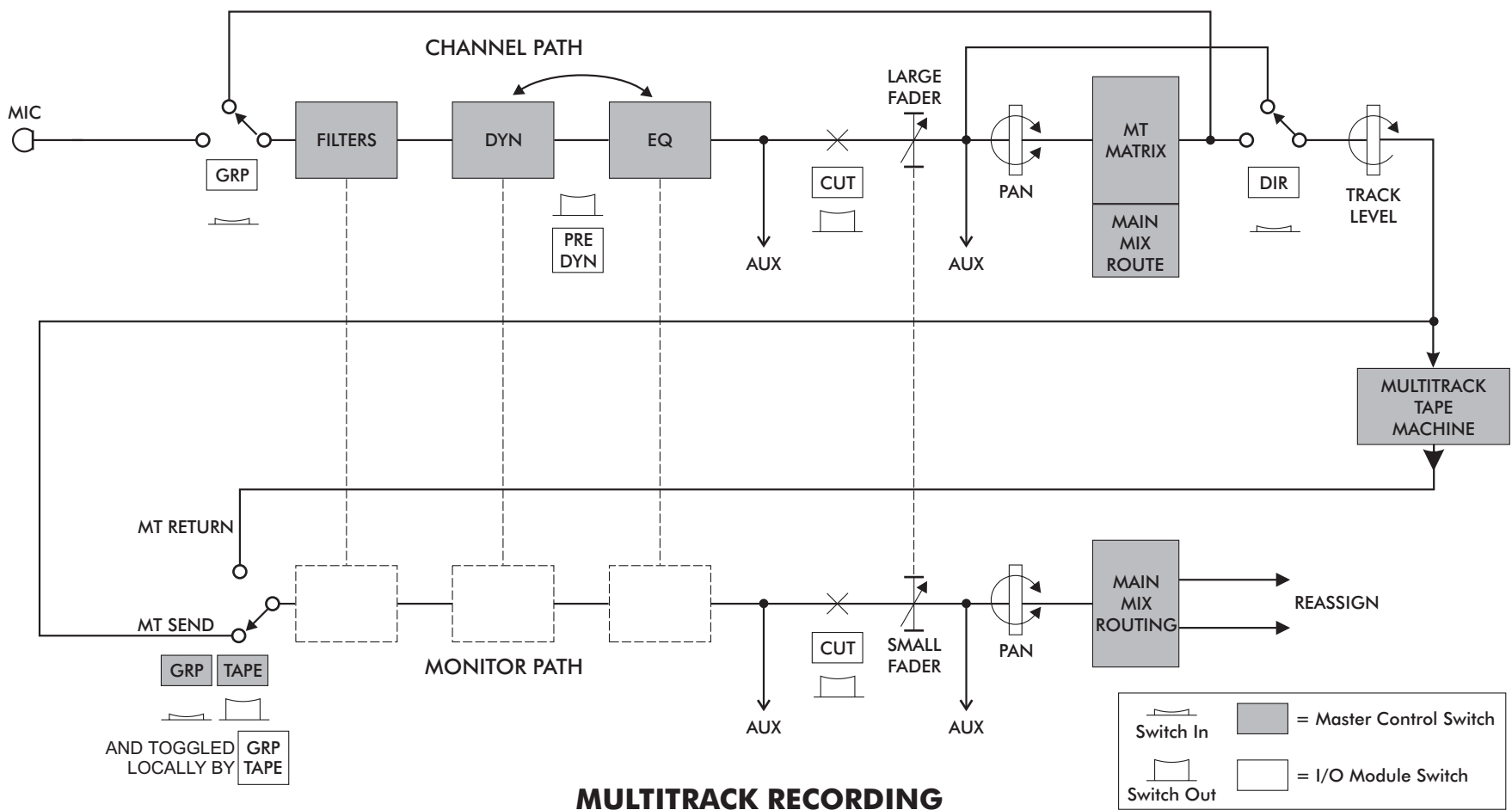
The track level control provides simple level adjustment for the track send.

Monitoring of either the multitrack sends or returns, or a mix of both is possible with switching performed on a local or master basis, controlled from the monitor section.

The high and low pass filters, equaliser and dynamics can be switched to the monitor path with the switches next to the small fader on the I/O module, and in a similar way the auxiliaries may be configured in the monitor path, prefade, precut for cue sends to the studio or postfade for monitor reverb sends.

The small fader is usually configured for monitoring when recording but this role can be swapped with the large fader locally or on a master basis from the monitor section.

The monitor signal can be panned and routed via the main mix bus routing matrix to the main mix outputs.



Mixdown

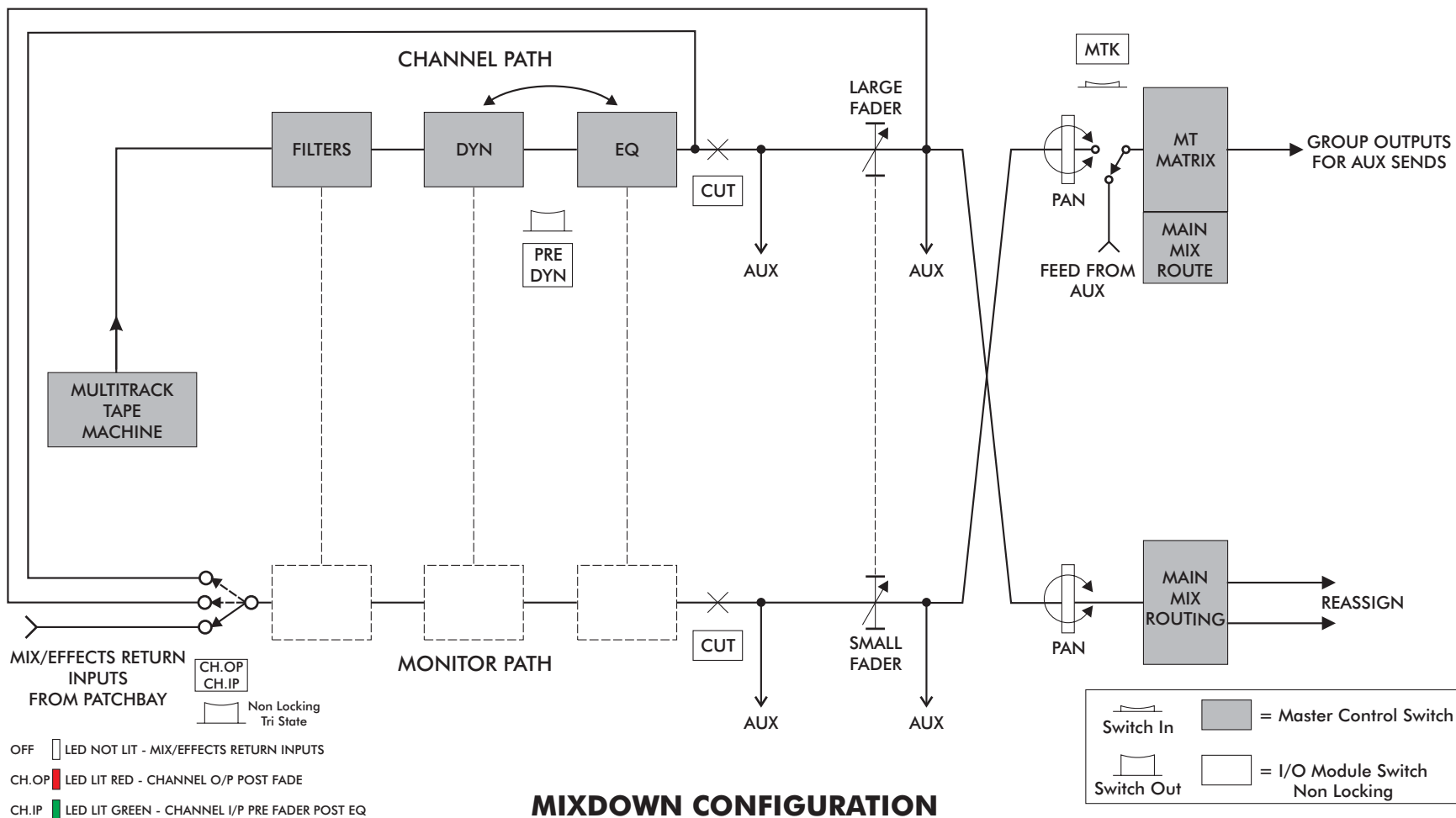
In mixdown the roles of the small fader and large faders are effectively reversed to those when recording.

The multitrack returns are brought to the channel path and via the large fader are routed to the main mix busses. Processing and auxiliary sends are normally in the channel path.

The monitor path has two distinct uses in mixdown:

1. It accepts secondary mix inputs such as effects returns. Unused channel path processing can be switched to the monitor path where necessary. Access to the main mix outputs is provided on the multitrack routing matrix.
2. The path can be used for additional pre/post-fader channel effects sends by using the CH.OP/CH.IP (channel output/input) switch. The monitor path fader controls the send level to any one of the 48 groups available from the multitrack routing matrix.

The auxiliary sends from the channel can also be routed to the multitrack routing matrix in place of the monitor path signal using buttons in the aux section of the I/O strip, effectively expanding the number of auxiliary sends available during mixdown.



MIXDOWN CONFIGURATION

Overdubbing

The console has a sophisticated monitoring and cue send system for tracklaying and overdubbing which allows the engineer total monitoring freedom in the control room whilst maintaining the correct cue sends to the studio. The configuration is controlled by a combination of master switches, local channel switches and mode selection within Encore.

The artists' headphones are normally fed from the console cue outputs, which in turn are normally fed from auxes in the monitor path, pre-fader. In this description of overdubbing, the terms cue output and pre-fade monitor auxiliary are interchangeable.

Group/Tape and Channel Overdub Operation

The Multitrack Monitor pushbuttons (GRP and TAPE) on the Master panel switch the inputs to the console's monitor paths on a master basis from multitrack send (GRP) to multitrack return (TAPE). Additionally, the monitor path source on any channel can be toggled locally between GRP and TAPE using the GRP/TAPE pushbutton on the I/O module.

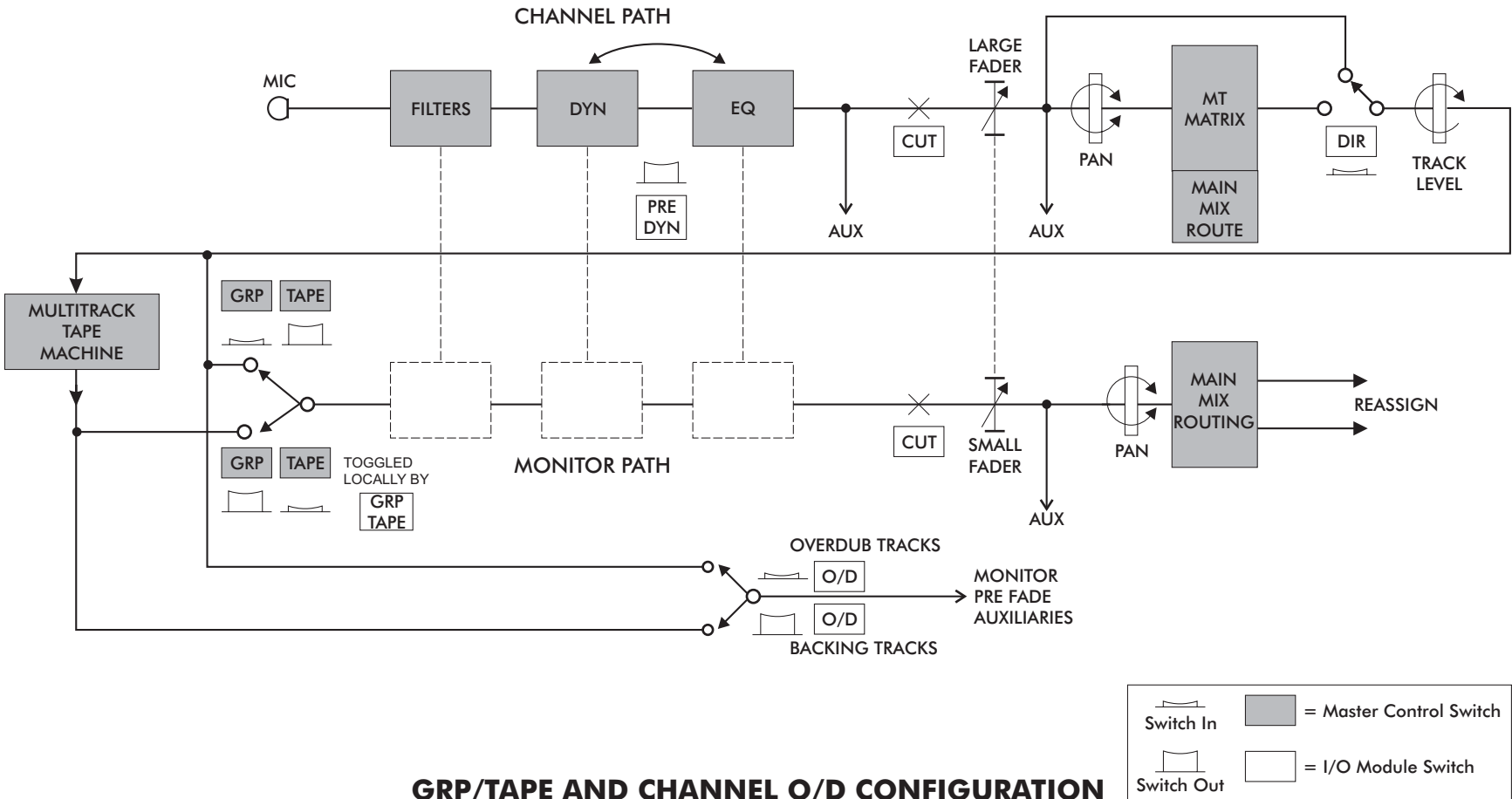
Input channels switched to O/D send the console output (track send) to the cues feeding the studio headphones.

The backing track channels (those without channel O/D selected) send the multitrack return to the cues.

These basic modes are modified by additional centre section master switches and Encore status.



Control of tape machine track arming, either parallel or serial is an option.



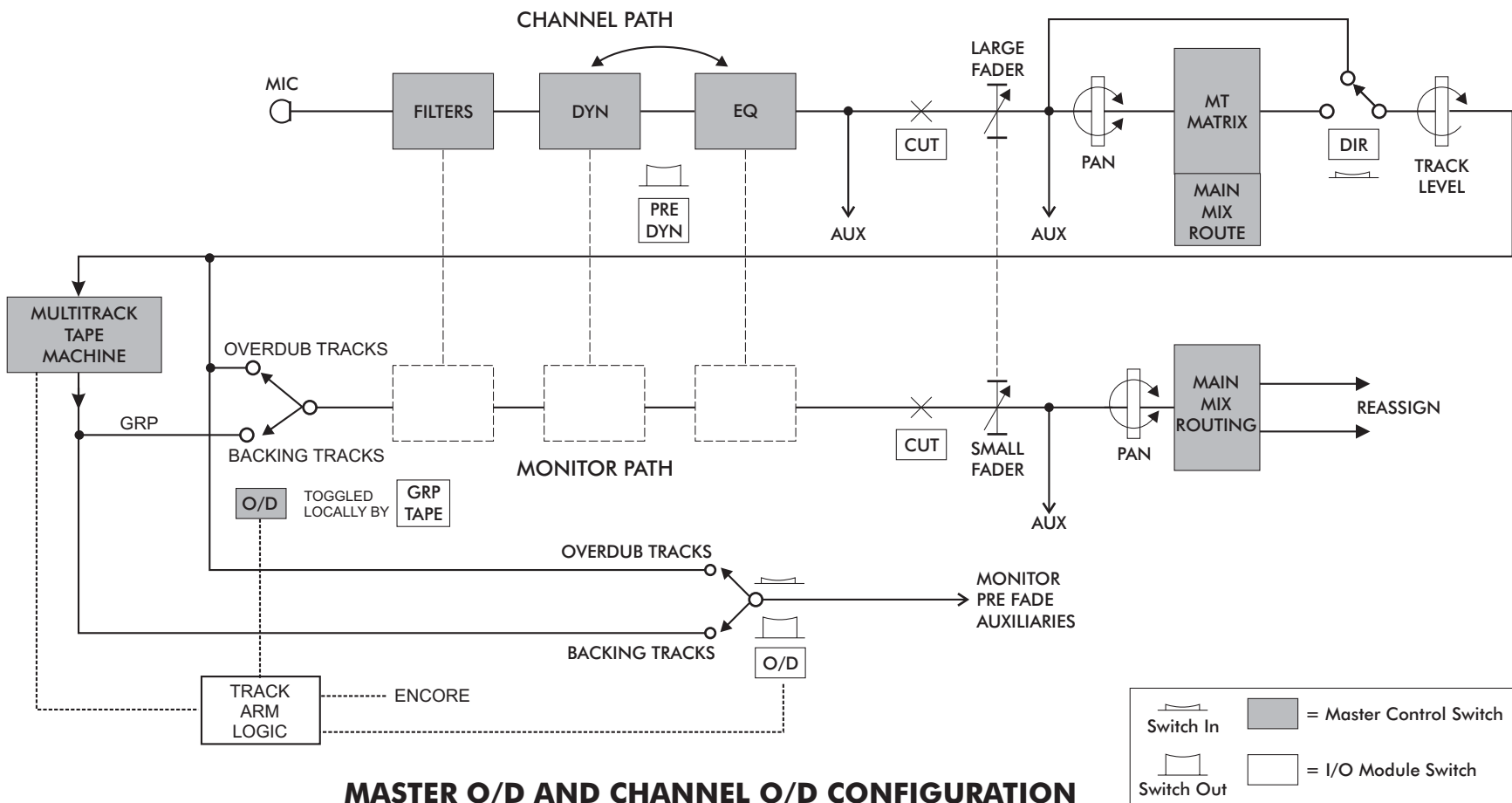
GRP/TAPE AND CHANNEL O/D CONFIGURATION

Master O/D and Channel O/D Function

Switching on the Master O/D pushbutton cancels any previously operated channel O/D pushbuttons, and puts all monitor paths into TAPE, so that the control room monitors and cue sends from all channels are both on the multitrack returns.

Switching on an individual channel O/D pushbutton causes the control room monitoring and cue send from that particular channel to be fed from multitrack send. It also arms the channel's corresponding track on the multitrack machine (if the console has been wired to the multitrack to support this function) See Track Arming details below.

The channel GRP/TAPE switch can still be used to toggle the control room monitoring between multitrack send and return on an individual channel basis, while cues remain on track send.



Master O/D and Preset O/D via Encore

An alternative method for performing single track overdubs is to preset the overdub channel using Encore instead of the Channel O/D switch. The Channel O/D switch is then used to enter Record mode directly for individual tracks. See Track Arming details below.

The “mixed cue” configurations described on the next pages are valid for both Encore and manual O/D configurations.

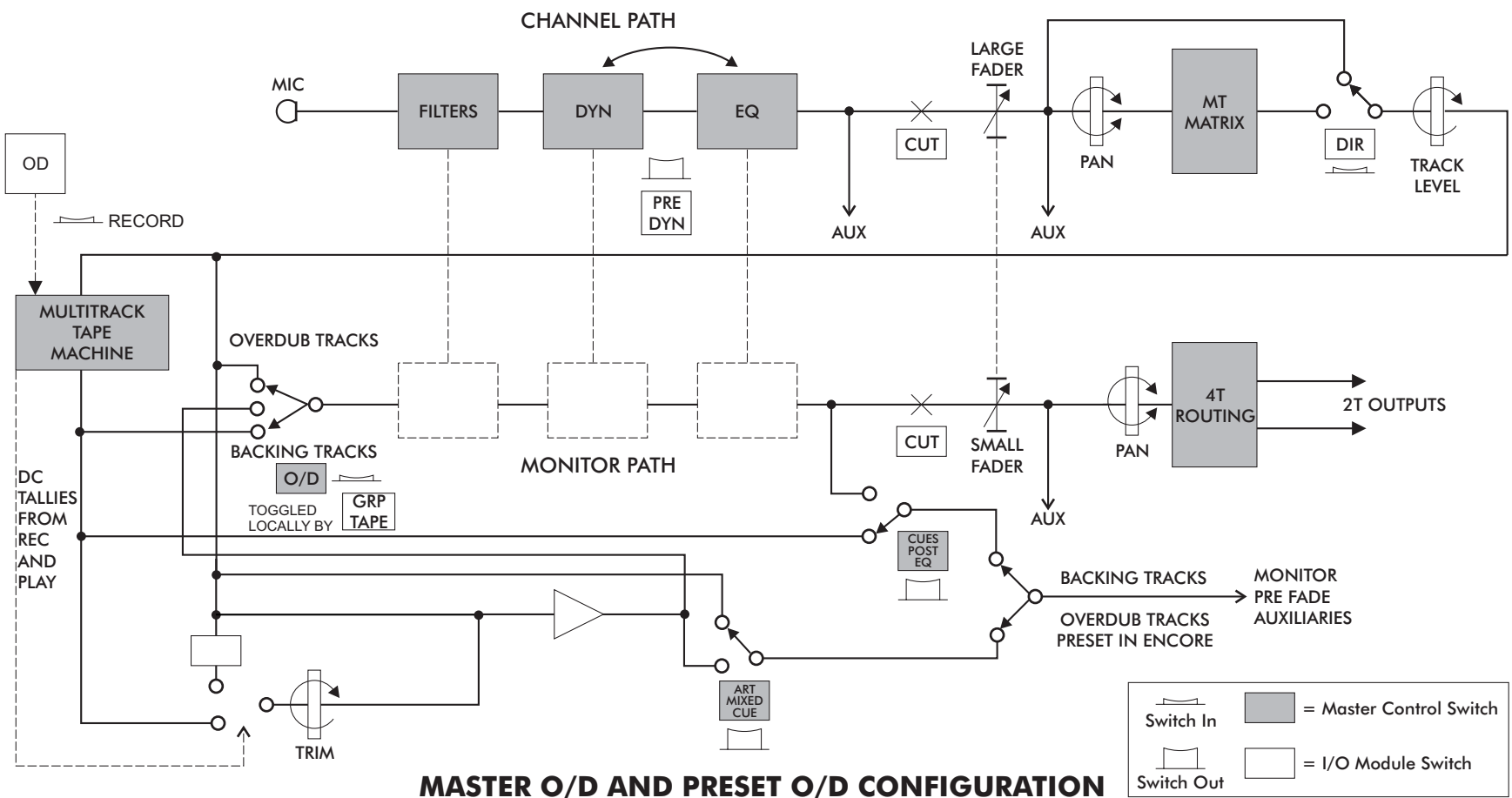
Track Arming with the Overdub button

Track arming commands are either initiated from or passed through Encore from the console, so Encore must be up and running for this feature to work. The master O/D switch must also be on.

There are two ways of putting tracks into record on a multitrack: preselect the tracks to record by “arming” them and then drop the transport into record mode. This puts all armed tracks into record simultaneously. Alternatively put the transport into record mode first and drop each track into record individually using its track arming switch. 88RS allows both methods to be used without interfering with the audio routing for the engineer’s and artists’ cues.

Selecting O/D tracks using the channel O/D switches is the equivalent of doing the track arming first. The selected O/D switches set up the audio routing and illuminate dimly until the transport is put into record mode, at which point all the selected O/D switches illuminate fully as their tracks go into record together. Non-selected O/D switches remain dark and their tracks don’t go into record.

Selecting O/D tracks using Encore’s preset screen sets up the audio routing for the cues for these tracks, but does not arm the tracks. This allows the transport to be put into record mode without the tracks going into record. When the transport is in record mode, the preset O/D switches flash to warn that pressing them now will drop the associated tracks into record. O/D switches not preset will not flash and will not go into record.



MASTER O/D AND PRESET O/D CONFIGURATION

Master O/D and Channel O/D - with Mixed Cue

When the master O/D switch is on, both the artists' cue and the engineer's monitoring (monitor path) can be fed with a mix of multitrack send and return.

The relative levels of the send and return can be varied on an individual basis with a trimmer on each I/O module.

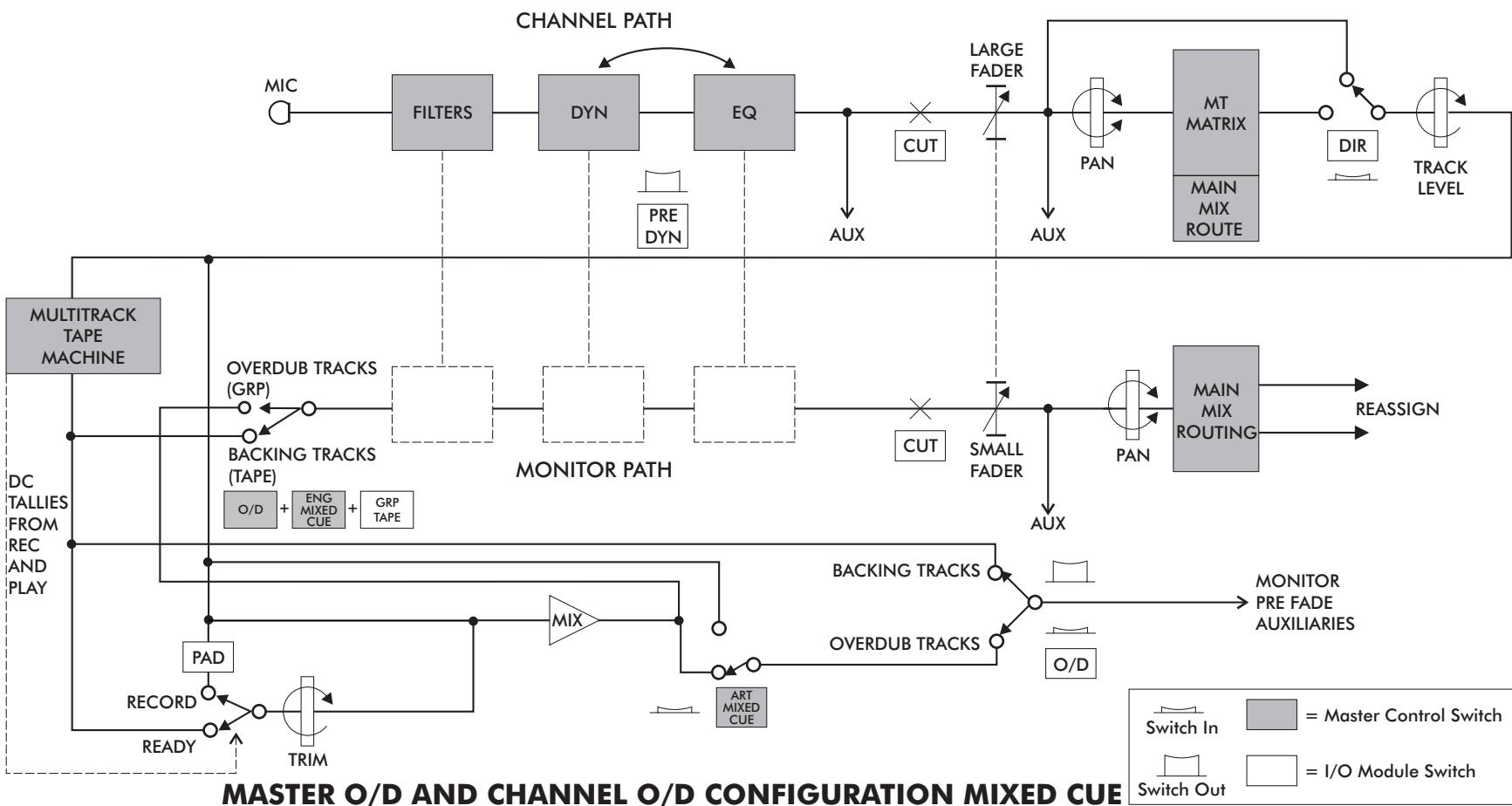
The artists' cue sends are fed with this mix on O/D track channels by operating the ART MIXED CUE switch in the master section.

The control room monitoring is fed from this mix on O/D track channels by operating the ENG MIXED CUE pushbutton in the master section. This changes the function of the GRP/TAPE pushbutton on the I/O module so that it now feeds the control room monitoring from the mix of multitrack send and return in the GRP position - and tape return only in the TAPE position.

In both of these modes, once the tape machine enters record, both artist and engineer's cue are from the multitrack send only.



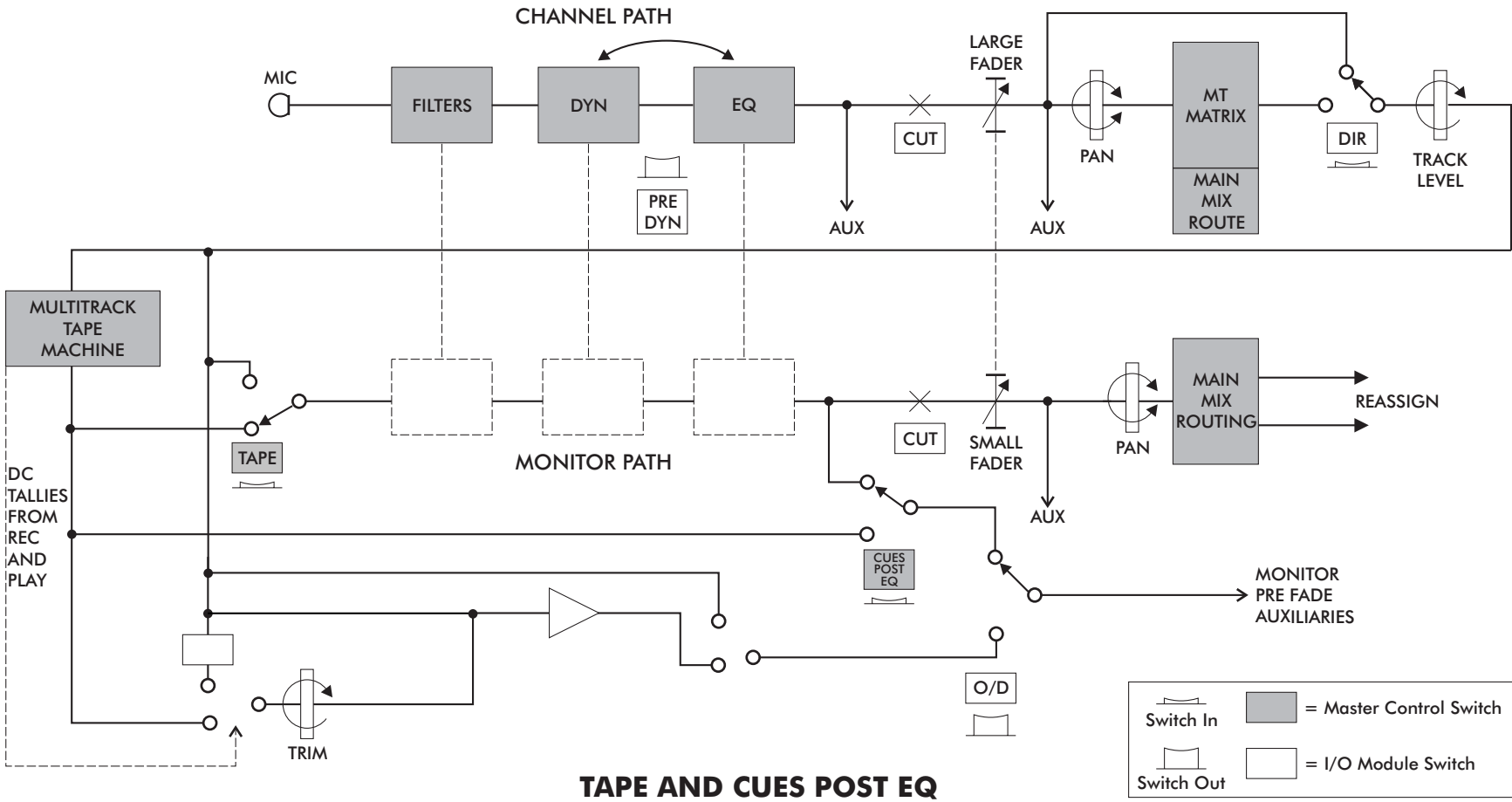
When O/D and ENG MIXED CUE are selected, the GRP/TAPE switches only work as described above on those channels locally selected to be overdub channels, either by Encore presets or with the local O/D switch. The other (backing track) channels are forced to tape.



MASTER O/D AND CHANNEL O/D CONFIGURATION MIXED CUE

Tape and Cues Post EQ

The backing track cues can be assigned to a 'follow monitor' condition using CUES POST EQ so that any monitor filtering, equalisation and dynamics processing are also heard on the cues. The cues cannot be set post EQ on monitor paths set to GROUP.



TAPE AND CUES POST EQ

Broadcast

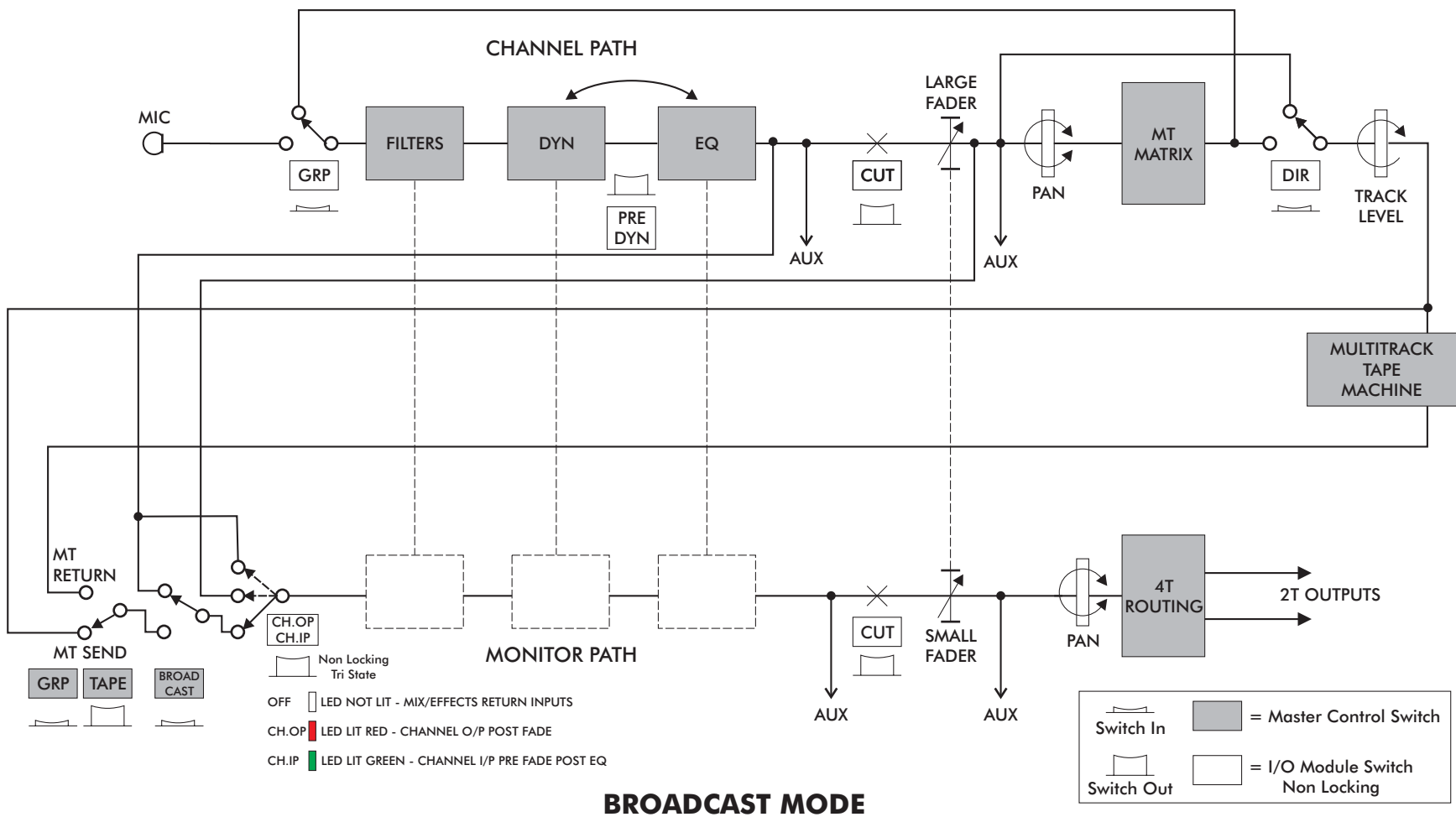
This mode allows simultaneous broadcast and multitrack recording.

When BROADCAST is pressed the monitor path signals are taken from the channel paths, prefade, post-equalisation. This can be further enhanced by selecting local "CH.IP" on a channel by channel basis, allowing for processed pre fade inputs to be mixed to air.

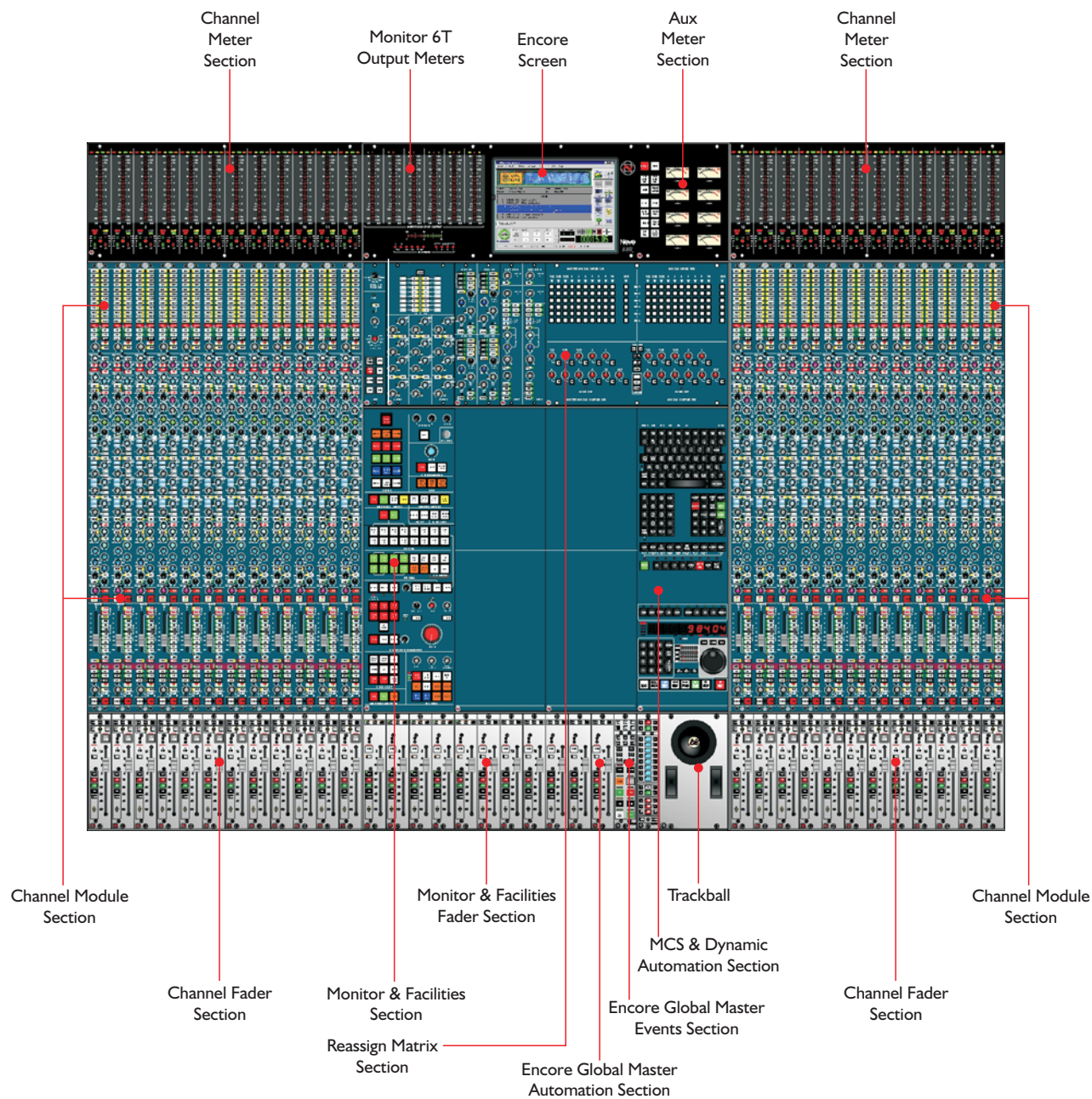
Fader swap is automatically engaged when BROADCAST is selected and can be cancelled whilst broadcast is still engaged.

This facility allows the small fader to control the multitrack mix and the large fader to control the main mix for broadcast. This method optimises the level sent to tape.

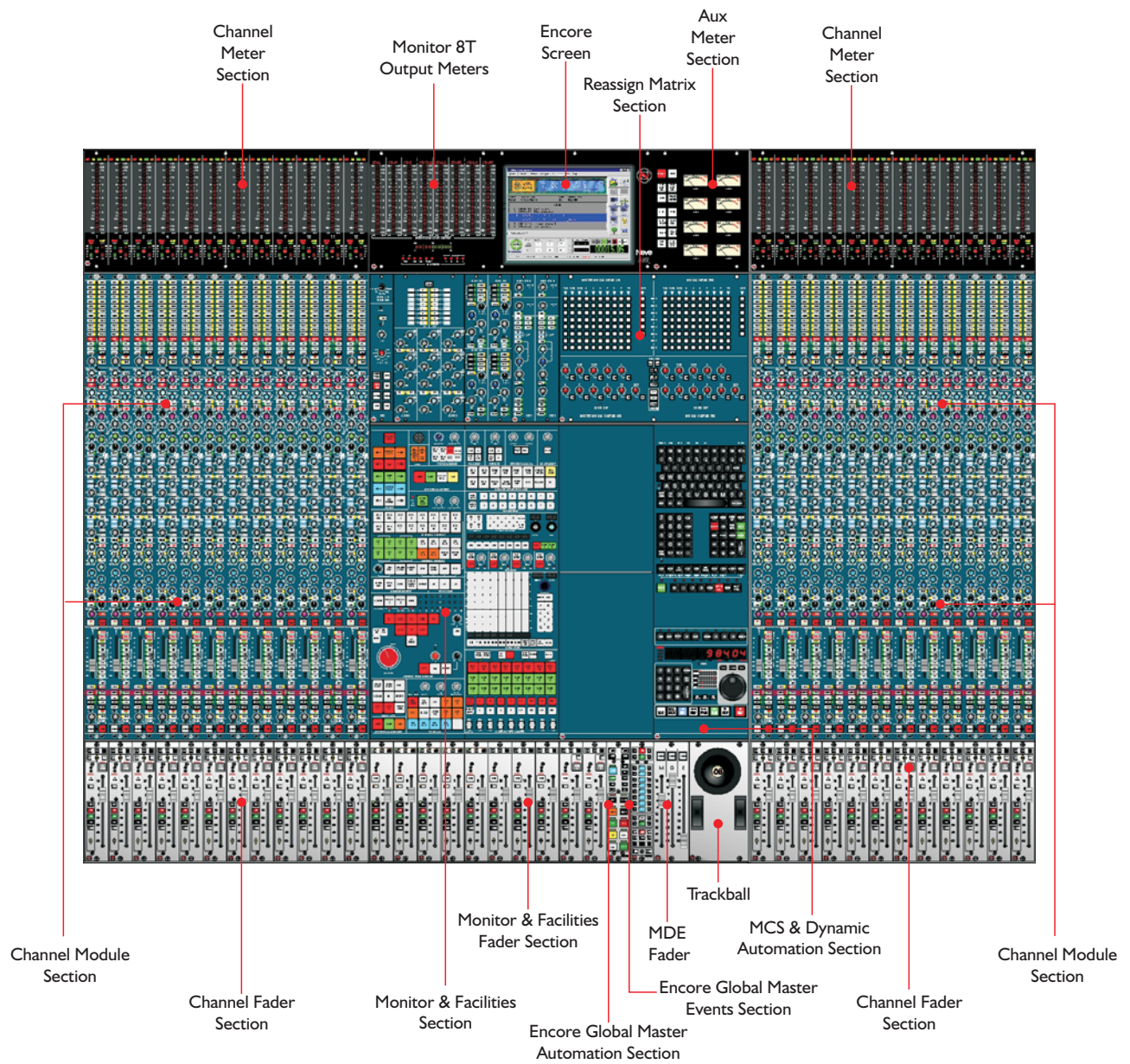
Alternatively the individual channels' CH.OP & CH.IP switches can be engaged in CH.OP to produce post channel fader, pre-pan track sends using the monitor fader to trim the track sends. This method records inputs at roughly the level they were broadcast at, so the mix can be recreated by replaying the multitrack with faders set at unity.



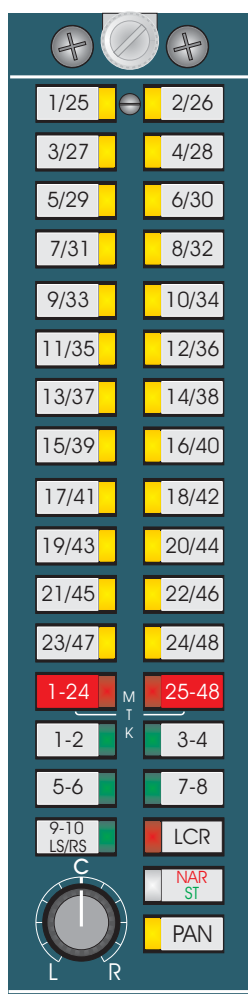
THE 88RS CONSOLE SURFACE



*Standard 6T 88RS
24 Fader Console*



8T 88RS SP2
24 Fader Console



Channel Module
Multitrack Routing
section

The 88RS Channel Module

There are two versions of the channel strip, one with an integral microphone amplifier, and one with dual line level inputs that will support an optional remote microphone amplifier. Apart from the input section, both versions have identical facilities.

Multitrack Routing

At the top of the module there are the routing buttons for the 48 multitrack busses, the 4 stereo plus LS/RS (9-10) and the LCR main mix busses.

Using the 1-24 and 25-48 selector buttons it is possible to route to multitrack busses in the range 1-24, or 25-48, or both.

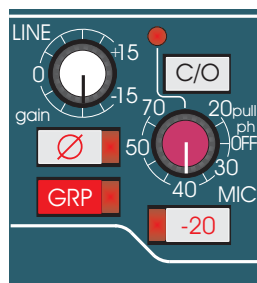
Switching the pan control in will allow the multitrack send to be panned between odd (left) and even (right) numbered tracks. It also enables panning to the main mix busses. Without the pan control, the output is sent equally to left (centre) and right. When in circuit, the control automatically delivers an L-R pan law to stereo busses and an LCR pan law to LCR busses.

How the main mix busses are actually used in surround format mixing is determined by the central re-assign panel.

The unique NARROW/ST button is a tri state switch which only works when the pan is switched on. In its un-operated state the LCR pan law has a wide divergence. However, with the first press of the button the LED indicator will light red and the LCR pan law will change to a narrow divergence. Pressing the button for a second time will make the LED indicator turn green and the L and R of the LCR bus will be fed with the ST pan so as to allow the operator to create "phantom" centres. Pressing the button a third time will return to wide divergence (LED off).

The multitrack routing is fed from either the channel path or the monitor path, depending on the mode of the channel. When recording, the multitrack routing comes from the channel path, but when mixing the source is normally the monitor path, allowing the busses to be used as additional auxiliary sends.

MTK switches in the auxiliary send section also allow aux sends to be diverted to the multitrack busses during mixdown. This does not affect the monitor path routing to the main mix busses, so the monitor paths can still be used as additional mix inputs while the auxes are routed to the multitrack busses.



*Channel Module
Input section*

Input Selector

The mic amp design offers low noise and low distortion at all signal levels.

The gains of the mic and line inputs are adjusted on two continuously variable rotary controls providing a total range of 0dB to +70dB (in conjunction with -20dB PAD) for mic and -15 to +15dB for line with centre detent.

The dual line input module has two LEDs to indicate whether the LINE A or LINE B input is selected. Both modules have a mic input trim control, in the case of the dual line input module this is for the optional remote mic amplifier.

Mic/line switching is controlled by the central mode control switches (Record, Mixdown, Broadcast etc.). The C/O switch allows the selection to be toggled locally. Its indicator illuminates when the channel input is in the Mic position.

Both inputs can be phase reversed.

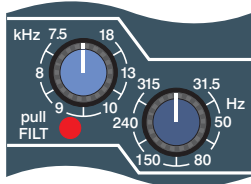
Phantom power can be selected on/off on individual channels. The default is phantom power on, but pulling the mic gain control out will turn it off.

Fader Direct Input

A line level input (e.g. from specialist external channel inputs such as the Neve 1081 module) can be brought into the channel fader input, bypassing all the 88RS channel functions. This is done under computer control - refer to the System Menu section of the Encore manual for further details. The direct input point is immediately before the small/large fader swap point in the channel path, so the direct input may be to the small or large fader depending on the channel mode.

Grouping

For patch-free audio sub-grouping, the GRP group switch allows the channel input to be switched to the multitrack bus corresponding to the channel number. For example if several channels are routed to track 6, then pressing GRP on channel 6 will make channel 6 the group master for these channels. This allows all inputs routed to track 6 to be processed as a channel signal before being re-routed. The GRP switch over-rides the mic/line selection.



Channel Module
Input Filter section

Input Filters

These are 12dB/octave high and low pass filters, with continuously variable frequency ranges from 31.5Hz to 315Hz and 7.5kHz to 18kHz respectively.

The filters can be switched into the channel or monitor path independently of the EQ by pulling out the relevant frequency control knob.

Dynamics Control

Full limiter/compressor and gate/expander facilities are available (each of which can be individually switched in or out of circuit). The expander/gate uses the left hand side controls of the section and the controls for the compressor/limiter are on the right.

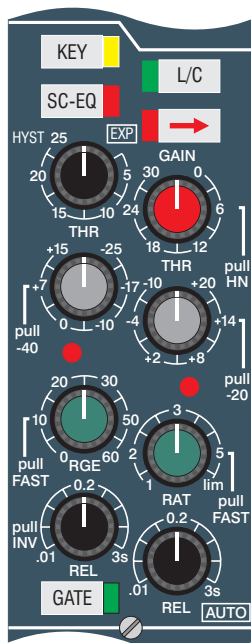
The expander/gate has rotary controls for a 0-60dB gate depth range, a +15 to -65dB threshold (using the integrated -40dB switch), release time from 10ms to 3s, a switchable attack time of 500μs (RGE knob in) or 50μs (RGE knob pulled out) and variable hysteresis.

The hysteresis control sets the difference in threshold for signals that are rising or falling in level. Signals that are rising in level turn on when the level reaches the threshold level plus the hysteresis value. Signals that are falling in level turn off at the lower threshold level. Raising the threshold for rising signals prevents noise turning the gate on, while allowing a lower threshold for falling signals to prevent reverb signal 'tail's being prematurely gated. For example, if the threshold is set at -50 and the hysteresis is set at 10, the signal level would have to rise above -40dB before the channel turns on and the channel would remain on until the signal level fell below -50dB. The control allows up to 25dB of hysteresis.

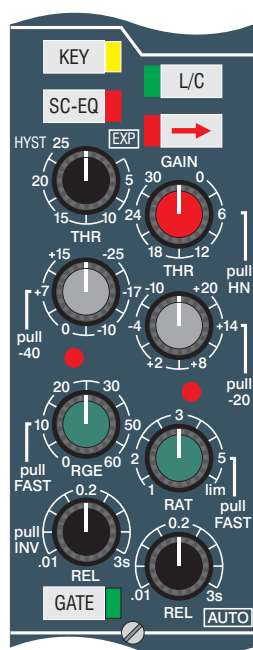
Turning the hysteresis control fully counter-clockwise switches the gate off and the 2:1 expander on.

Pulling out the release control inverts the key (control) signal to the gate, turning it into a "ducker". This feature is normally used with an external key. When *gating*, a signal above threshold level on the key input allows signal to pass; when *ducking* a signal above threshold level on the key input causes the gain of the channel signal to be reduced by the amount set on the depth (RGE) control.

Switches are provided for the external key input and for inserting the EQ into the side-chain, for frequency conscious gating or compression (eg de-essing). The external key input is accessed from the patchbay.



Channel Module
Dynamics section



Channel Module
Dynamics section

The limiter/compressor has rotary controls for release times from 10ms to 3s, a +20 to -30dB threshold range, a ratio of 1:1 to limiting and up to 30dB of gain make-up. The compressor has soft knee characteristics as standard with hard knee available by pulling out the gain control. Attack time is program dependent, ranging from 3ms to 7ms, or 1ms to 7ms if the ratio control is pulled out (fast).

The limiter/compressor release control has an end switch for automatic programme dependent release. Turning the release control fully clockwise (to 3S) switches to a triple time-constant, programme dependent release time.

Anti pumping and breathing circuitry allows the unit to operate on the source musically whilst retaining absolute control over the dynamic range.

The LINK switch links the dynamics gain control with that of the module located immediately to the right. This allows a stereo input across two or more modules to compress/limit to the same amount, maintaining the stereo image.



As stated the release time can be set to a very fast 10ms release. This will only be suitable for certain percussive instruments themselves having a fast decay and should not be applied for all slow decay sources as undesirable results can be obtained.



Channel Module
AUX section

Auxiliaries

The eight auxiliary sends can be configured into either the channel or monitor path using the switches next to the small fader.

Each aux send has its own individual On/Off switch (press the level control in for ON, press it again for OFF) and Pre-fade/Post-fade switch (press PRE in for pre-fader position).

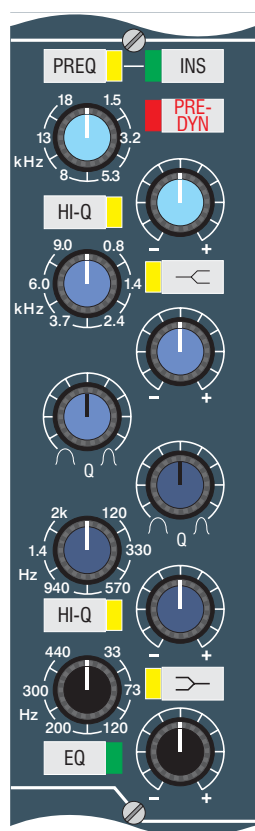
The channel pre-fade pick-off point is arranged so that when tracklaying the signal is taken pre-cut to allow destructive solos to be performed in the control room and still retain cue sends. In Mixdown mode the signal is taken post-cut so that the effects send is cut with the source.

Each pair of sends can be switched to operate as 2 independent mono sends, or as a stereo aux with level and pan controls using the numbered ST switches. In stereo mode, the odd numbered knob is the level control and on/off switch while the even numbered control becomes the pan control.

For correct operation of a stereo aux bus, the aux pair should also be switched to ST on the aux master control in the centre section.

In Mixdown mode the small fader output can be routed to the multitrack routing matrix - allowing as many as 48 fully mixable extra auxiliary sends.

Alternatively the aux section MTK buttons can be used to divert one or more of the auxes to the multitrack busses with the advantage that they have independent level control over the contributions and that the monitor path is still available to use as an additional input with routing to the main mix busses.



Channel Module
Equalisation section

Inserts

Inserts can be positioned in either the channel or monitor path independently of the EQ using the switch next to the small fader.

The insert can be switched post-equaliser or pre-EQ and dynamics .

The insertion will provide an output regardless of the INS key state.

Formant Spectrum Equalisers

The unique sound of AMS Neve equalisers is the result of years of research and extensive studio experience.

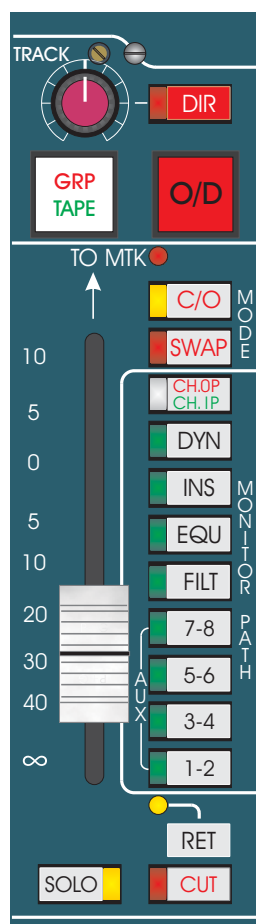
The equaliser provides 4-band parametric equalisation, with overlapping frequency ranges.

HF	1.5kHz - 18kHz
M2	0.8kHz - 9kHz
M1	120Hz - 2kHz
LF	33Hz - 440Hz

The two mid-bands have variable controls for Q (from 0.4 to 10), gain (20dB cut and boost) and frequency. The Q also changes automatically with gain (as gain is increased, so is the Q).

The high and low frequency EQ controls provide variable gain (20dB cut and boost) and frequency controls with switchable Q (either 0.7 or 2) and a peak or shelf characteristic.

The equaliser section can be switched before or after the dynamics section (PRE-DYN switch). It can be used in the Channel or Monitor path (switches in the small fader area).



*Channel Module
Small Fader and
Mixdown section*

Track Send

The track level trim applies +/- 10dB trim to the output level of the multitrack bus corresponding to the channel number.

The channel signal can be routed directly to the corresponding track output, bypassing the multitrack routing matrix using the DIR button.

In this mode, signals from other channels cannot be routed to this track.

Monitor Path Switching

The console has a sophisticated monitoring system allowing monitoring freedom in the control room while the correct cue sends are retained. The system uses the GRP/TAPE and O/D (overdub) switches in conjunction with master monitor selection to achieve this. The O/D switch also allows the multitrack tape machine to be record armed/punched in from the channel strip plus a further enhancement of GRP ARM facilities. For further details refer to the Console Configuration section of this manual. For information on GRP Arm facilities refer to page 5:18.

Channel Status

Fader and status swaps can be achieved on an individual channel basis, overriding the global status controls on the Master Mode Select Panel.

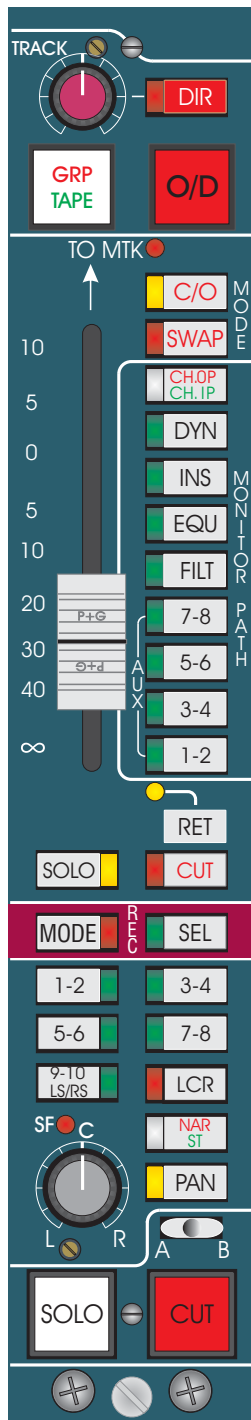
The SWAP button reverses the roles of the small and large faders. Automation that was written on the small fader gets transferred to the large fader and vice versa. i.e. the automation stays with the path, not the fader.

The C/O button switches the configuration of the channel strip between record and mixdown modes.

Either the channel path or the monitor path may be feeding the multitrack routing at the top of the channel strip depending on the global status (record/mixdown) and the local C/O switch. The TO MTK LED indicates when it is the monitor path.

CH.OP/CH.IP (Channel Output/Input)

The CH.OP/CH.IP button is a tri state switch. When in CH.OP mode (indicated by a red LED) it allows the input to the monitor path to come from the post-fade channel path output so the small fader can be used as an additional aux send to the multitrack busses during mixdown. When in CH.IP mode (indicated by a green LED) the input to the monitor path will be fed from the pre fade post EQ output of the channel path. This is useful for automated panning between large and small faders, where a mono input source is fed to both faders simultaneously.



Channel Module
Small fader and main
fader routing sections

Small fader

The small fader uses a Penny and Giles conductive plastic moving fader and is automated in the same way as the large fader. The small fader is normally in the monitor path, but can be swapped with the large fader.

Monitor Path Selectors

The MONITOR PATH switches next to the small fader are used to assign the module's processing elements such as the EQ, dynamics and auxiliary sends to the monitor signal path.

Channel/Monitor Safe

The RET switch is a quad state button which allows the channel to be isolated from the channel and monitor solo mutes, therefore the channel can be used as a rev return input. LED indication shows the 4 states; Off: no isolation, Red: LF isolate, Green: SF isolate, Yellow: both LF & SF isolate.

Mode & Sel

Are used to set the automation modes for the channel switches. Refer to the 'Automated Channel Controls' section of the Encore manual for further details.

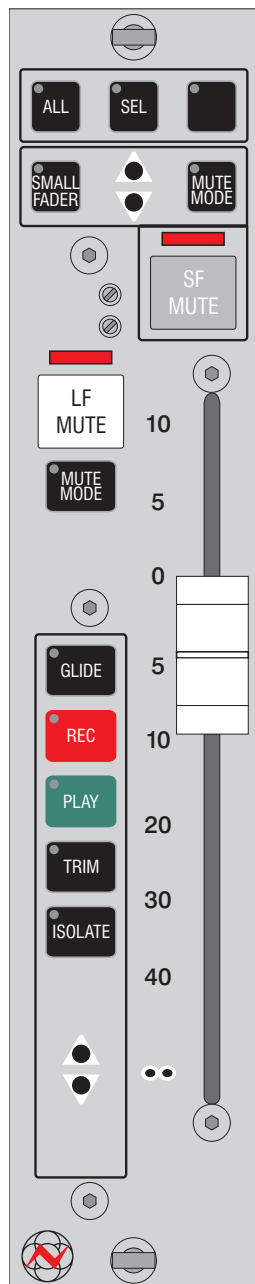
Mixdown Output Selection

At the bottom of the channel strip are the routing buttons for the main mix busses. The pan control creates both LCR and L-R pan laws for the different bus types. As well as an on/off switch, the pan control can be set to give the signal a WIDE/NARROW width or "Phantom" centres using the NAR ST button in the LCR field.

Solo and Cut Facilities

The console has a sophisticated solo system with selectable momentary, interlocking and latching action push-buttons performing either in-place solo, or PFL or Surround AFL type solos.

Cuts and Solos are described fully in the following chapter of this manual.



Channel Fader

Channel Fader Module

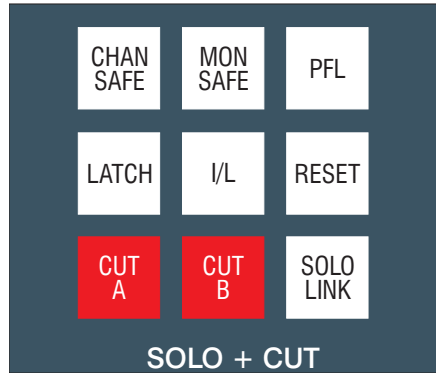
A Penny & Giles moving fader with associated discreet automation controls.

Mutes

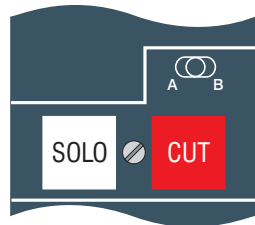
The two Mute Buttons are for the large and small faders. Unlike the Cut buttons in the channel module, these mutes are automated.

A full description of the automation modes and operation of the other controls is given in the Encore manual.

SOLO & MASTER CUT SYSTEM



Centre Section
Solo & Cut



Channel Module
Solo and Cut
switches

The 88RS has comprehensive solo and cut facilities with operation affected by switches in the channel module and in the centre section.

The channel and monitor paths of the console's channel modules have independent SOLO and CUT systems, unless the centre section SOLO LINK is selected.

The operation of the solo is linked to the path, not the fader. If a fader swap is performed on a channel, the solo and cut functions move with the path to the other fader. For example, if only one strip's faders are swapped and the large fader SOLO is pressed on that strip when the console is in solo cut mode, the small fader cut switches will be activated on all the other channels.

Solo System

Latching, momentary or interlocking solo

The action of the channel module solo switches can be latching, momentary, or interlocked.

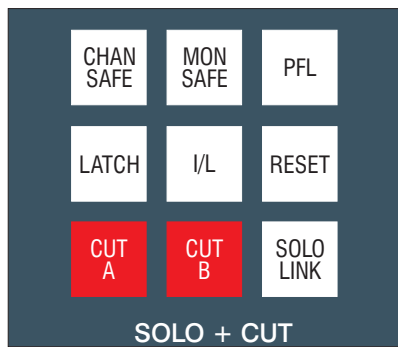
Latching Solo allows solo to be turned on and off on individual strips. After the first solo has been pressed, it remains on till de-selected. Other channels can be included in the solo at the same time, independently of each other.

Interlocking Solo causes each solo selection to de-select any previous selection so that only one path is soloed at a time. To solo multiple channels in interlock mode, hold down the first solo switch while pressing other solo switches. The selection will remain soloed when the first switch is released, until another solo switch or the centre section RESET switch is pressed.

Momentary Solo causes the solo switch to only operate for as long as they are held down. To enable momentary operation, press either the LATCH or the I/L switch.

Multiple paths can be monitored simultaneously in momentary mode by holding down the first solo switch pressed while pressing additional solo switches.

The selection will remain active until the SOLO key/push-button being held down is released.



Centre Section
Solo & Cut

Cut or Monitor Solo (with AFL or PFL)

The systems are normally in 'cut solo' mode, unless the tape machine is in record or a safe mode has been selected. Cut solo cuts all channel or all monitor paths (or both if SOLO LINK is enabled) except for the path being soloed. This affects what is going to the mix busses as well as what is heard in the monitoring.

The safe mode is a "monitor solo". The system (normally) provides positional AFL (after-fader listen) solo unless PFL (pre-fade listen) is selected. Monitor solo only affects the control room monitoring, not the signal going to the mix busses.

Solo in Place

Cut Solo does not affect the monitoring system, so naturally it leaves the solo in place, ie the source is heard as it is panned within the stereo or surround panorama.

Monitor solo switches the monitoring to dedicated surround AFL or PFL mix busses. With this unique system if a channel is routed to the ST busses then the AFL will be heard on the L and R speakers. If a channel is routed to the LCR bus then the AFL will be heard on the LCR speakers. Lastly if a channel is routed to the LS RS (9-10) busses then AFL will be heard on the surround loudspeakers. When AFL is operated the LFE (LE RE) speakers will be muted.

Due to the diverse nature of surround AFL monitoring an AFL SWAP switch in the monitor section will switch the AFL LS and RS busses to the left and right speakers so that signals intended for the surround speakers can be auditioned in the front loudspeakers for quick checking.

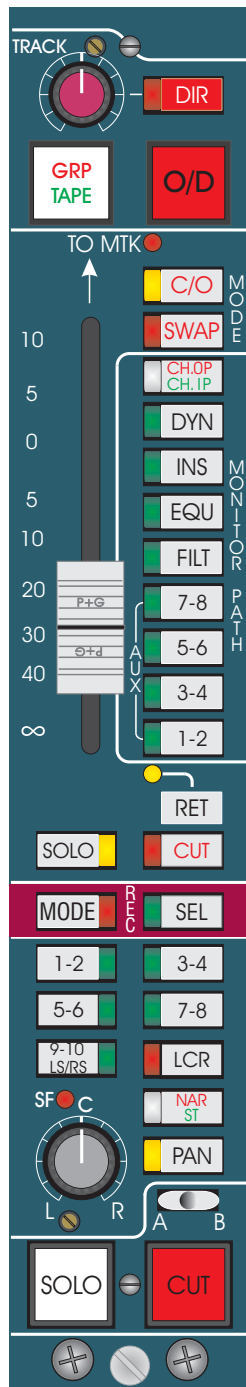
Cut Solo Indication

If a signal on the large fader is cut due to a solo being activated elsewhere, the CUT key will illuminate to half brightness to indicate cut solo.

The LED for the small fader CUT push-button does not have a half-brightness mode for cut solo. It will illuminate in cut solo the same as it does when pressed individually.

Combining the monitor and channel solo systems

Pressing the SOLO LINK key in the Monitor Panel connects the solo systems so that pressing any solo switch will mute all other non-soloed channel and monitor paths when in cut solo mode, except those with the RET button engaged.



*Small Fader Section
with RET switch*

Cut Solo Protection

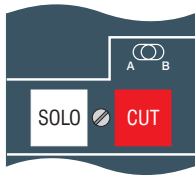
Pressing the RET switch in the small fader section of the channel strip prevents both the channel path and monitor path being cut when a cut solo is pressed anywhere on the console. This makes the channel usable as a reverb return.

The function is quad state switchable to include either both the channel and monitor path (indicated by a yellow LED), the monitor path (indicated by a green LED) or the channel path (indicated by a red LED).

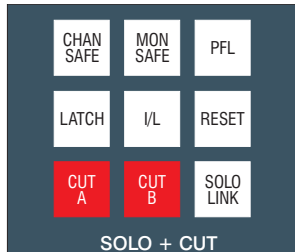
The monitor path is also protected against solo cuts when it is being used as an audio group master, i.e. the GRP switch is pressed in.

Solo Cancellation

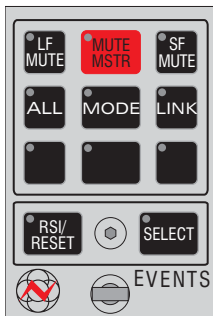
Pressing the central RESET button will clear any solos that are active.



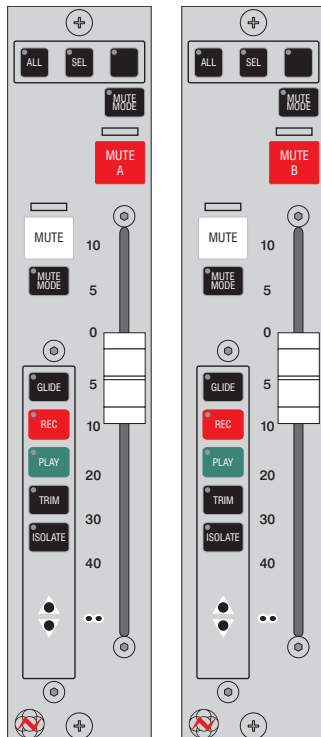
*A/B CUT switch
in channel*



*Master cut switches in
centre section*



Events Panel



*Group Fader
Mute A*

*Group Fader
Mute B*

Cut Grouping Facility

The A/B toggle switch above the channel cut switches allow the large fader cut switch to be included in either the A or B cut groups.

Pressing the master CUT A or CUT B switches in the centre section will mute any large fader that is switched to the A and B mute groups respectively.

The master switches are electronically latched and are also wired to external contacts on the console for possible remote control. (Under external control the switches light to half brightness). The master switches are also recallable.

Automated Mute Groups

In addition to the cut groups described above, there is also an automated A/B mute system. This system requires Encore to be running (even for manual operation) and is enabled by turning on the MUTE MSTR located on the Events panel, together with the enable switch for either (or both) the small fader or large fader mutes.

The mute system uses the same toggle switch on the module as the A/B cut system to select each channel to the A or B mute bus, or to neither. The mutes are then turned on/off using the MUTE A and MUTE B buttons on the mute-master Group faders. These switches will mute all the large faders on channels selected to the A or B bus respectively if the LF master is on and all the small faders on the busses if the SF master is on.

The mutes work on the fader circuitry, so if the faders are swapped when muted (either locally or globally), the mute will travel with the fader. However, the control is linked to the path, so if the LF Mute enable is on and the faders are swapped, operating the A or B group mute controls will affect the small fader and vice versa.

Disabling the mute groups on the Events panel, either by turning off the small or large fader mute enable or by turning off the Mute Master will cancel the relevant set of mutes at the same time as disabling the control. When the mute groups are turned back on, they don't automatically send out either a mute set or a mute clear - the mutes are left as they are until the controls on the group faders are used.

The automation modes for the group mutes are set by using the MODE key above the MUTE button on the group fader panels in conjunction with the standard RSI automation controls.

MONITOR & FACILITIES SECTION

Oscillator and Signal level



Oscillator Panel

Signal LED Threshold

The signal threshold is the level at which the signal indicators in the meter bridge come on. This indicator can either be used as a signal present or a signal overload indicator depending on the level set.

Oscillator Panel

The oscillator can be switched to frequencies of 40Hz, 100Hz, 400Hz, 1kHz, 4kHz, 10kHz and 15kHz.

CAL allows users to switch a calibrated level (set by the adjacent adjustment trimmer) to the selected oscillator outputs.

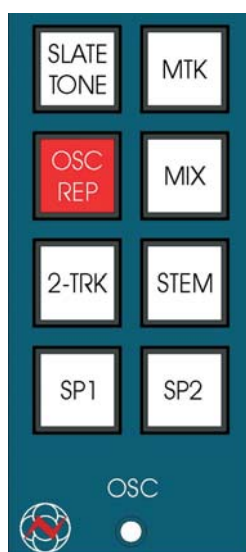
SLATE TONE sends a 30Hz tone together with talkback in place of the oscillator. On analogue tape machines this was useful for annotating takes and finding the annotations when spooling with the tape against the head.

MTK routes the oscillator or slate to the multitrack (group) outputs.

MIX routes the oscillator or slate to the mix and the standard stem subgroup outputs.

Oscillator Panel (8T Monitors)

This version is used on consoles where the optional scoring panel is fitted. The additional buttons are described below:



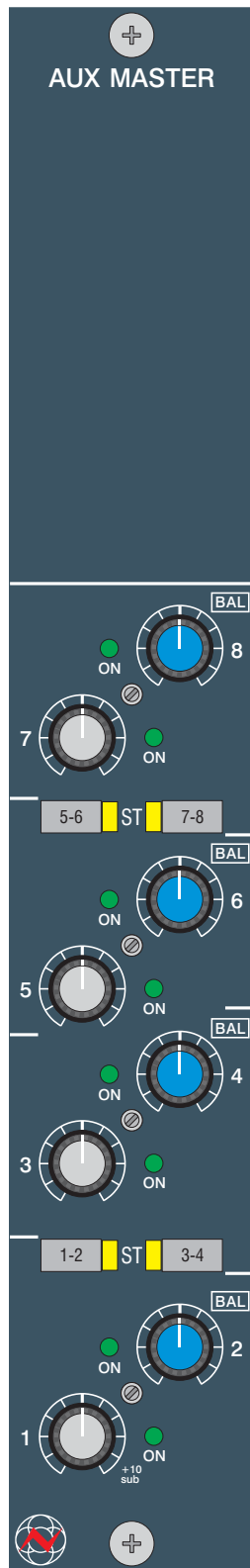
Oscillator Panel
8T Monitors

2-TRK routes the oscillator or slate to all 4 2T outputs.

STEM (optional) routes the oscillator or slate to all additional stem outputs.

OSC REP cuts and replaces Mix, 2T or Stem outputs with oscillator or slate.

SP1 and SP2 are spare switches.



*Auxiliary Master
Panel*

Auxiliary Master Section

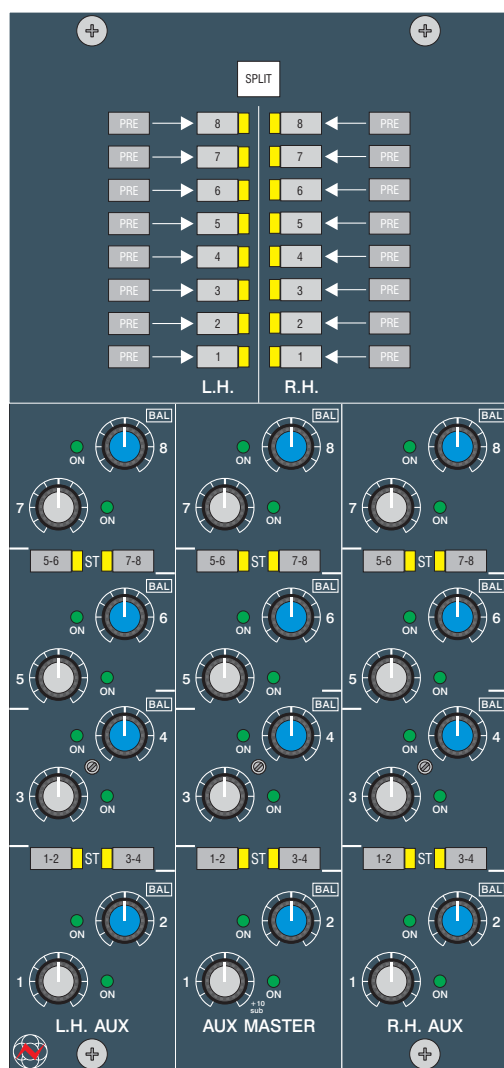
Aux Master Panel

The single panel provides output controls for the 8 console-wide busses. Each pair of auxiliary sends can be configured as two mono sends with independent level controls, or (by using the numbered ST switches) as one stereo send with a level (on the odd numbered controls) and balance (even numbered controls).

After the auxiliary master level controls, the auxiliary outputs feed a number of destinations:

- ☐ To the patch as aux outputs.
- ☐ To the aux insert send patch.
- ☐ After the patch insert point, to the meters and monitor.
- ☐ After the meters, to the REV SEND outputs and (after the engineering talkback injection) to the foldback outputs.
- ☐ To the Cue Mix panel.
- ☐ To the reassign panel (aux 1 only, when used as an LFE mix).

There is a possibility of being able to mix Aux 1 onto Bus 4 (Sub). When this button is selected on the Reassign panel it will automatically give the aux master level 10dB in hand.



Split Aux Panel

Split Aux Panel (Optional)

The optional Split Aux panel allows independent aux outputs for the left and right side of the console, or the busses can be combined across the console on an independent basis. The aux split is separate from other split functions on the console and thus is set and operated independently of any other split function. Since the Split Aux panel is physically larger than the standard aux master panel, it takes the place of 2 Rev Returns, leaving 2 stereo Rev Returns.

The Split Aux panel has separate master controls for both the right and left side auxes as well as controls for the global auxes. The jackfield contains patches for the main aux outputs, but customer wired varicons are available for Left Hand and Right Hand outputs.

The SPLIT button at the top of the panel enables the function, and on power up the default position of the button is off, allowing all 8 auxes from either side of the console to feed the Master Aux outputs.

Below the SPLIT button there are buttons that together with the various aux master level controls effectively form an auxiliary submixer. There are 2 sets of PRE buttons and 2 sets of On/Off buttons. One of each set for both the right and left side.

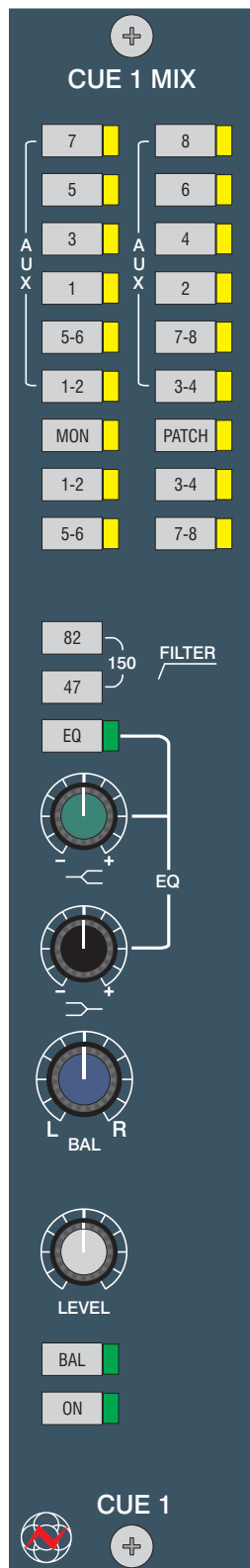
When the Split mode is not engaged (the default mode), all 8 auxes from both sides of the console will combine globally and can be accessed from the Master Aux outputs at the jackfield. In this mode no signal will be present at the Right Side/Left Side outputs.

When the Split mode is engaged, the On/Off buttons decide which auxes will also contribute to the Global aux outputs. If none of these buttons are engaged then all 8 auxes from either side of the console will be completely separated and their signals can be accessed from the Right Side/Left Side Aux outputs. No signal will be presented to the Master Aux outputs.

Any On/Off button engaged will feed its associated aux to both its split aux output as well as the Master Aux output. Any combination can be performed and this allows any number of auxes to be split or combined across the console at any time. When an On/Off button is engaged, the "Pre" buttons decide whether the signal sent to the Master Aux is pre or post the split aux master level.

The stereo/mono functionality of the Split Aux panel is the same as that of the standard aux panel.

There is a possibility of being able to mix Aux 1 onto Bus 4 (Sub). When this button is selected on the Reassign panel it will automatically give the aux master level 10dB in hand.



Cue Mix Panel

Cue Mix System

There are two alternative cue mix systems – either two stereo cue mix outputs with high and low frequency shelving, or four stereo mix outputs with a spectrum tilt control.

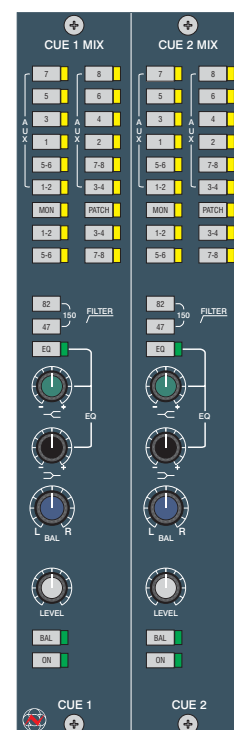
Each stereo cue mix is made of the auxiliary, control room monitor output, main output or patch-field sources selected on the buttons at the top of the section.

Mixes can be made using the Aux buttons 1, 2, 3 etc. One or more of these buttons can be used at a time and the source will be sent to both left and right equally. Stereo cue mixes can be sourced using the Aux buttons 1-2, 3-4, 5-6, or 7-8, Mon, Patch, or mix busses 1-8. Odd numbered sources will feed the left and even feeds the right.

The 88RS channel module, together with the centre section controls, allow the engineer to set up the pre-fade auxiliaries to provide intelligent mixes for the artist independently of the control room monitoring. This includes sending a mix of multitrack send and return with automatic level compensation when the track is dropped into record during an overdub.

The matrix at the top of the module is used to select the source signals for the cue outputs - this includes a patchbay socket for a direct input and a facility to select the control room monitor selector output.

Engineering talkback is injected before the patch bay insert point.



Dual Cue Mix Panel



Quad Cue Mix Panel

Quad Cue Mix Panel

The optional Quad Cue Mix Panel provides 4 stereo or up to 8 single ear mono mixes.

As with the Dual Cue Mix panel each cue mix can be fed from the auxiliary, control room monitor output, main output or 2 patch-field sources selected on the button matrix within the section.

Each cue section contains 2 level controls with integrated push on/push off switches. When used as a stereo cue send, these controls change to 1 level control and 1 balance control.

Each cue section has 2 stereo patch inputs. Patch 1 is unity gain and has no level control. Patch 2 has a level control with 0dB in hand (cut only control).

Each cue section has a simple tilt eq that provides + - 4dB at 1.2k. The eq is applied to both cue feeds of each section regardless of mode, mono or stereo.

The powerful Quad Cue Mix Panel provides very comprehensive talkback facilities. Each cue has it's own adjustable 0 to -60dB trim preset for the Engineers talkback as well as a separate overall talkback level control. Use of the Slate dims all cue mixes by an adjustable level generally set to -60dB.

Additional controls include a MONO button and a DUAL button.

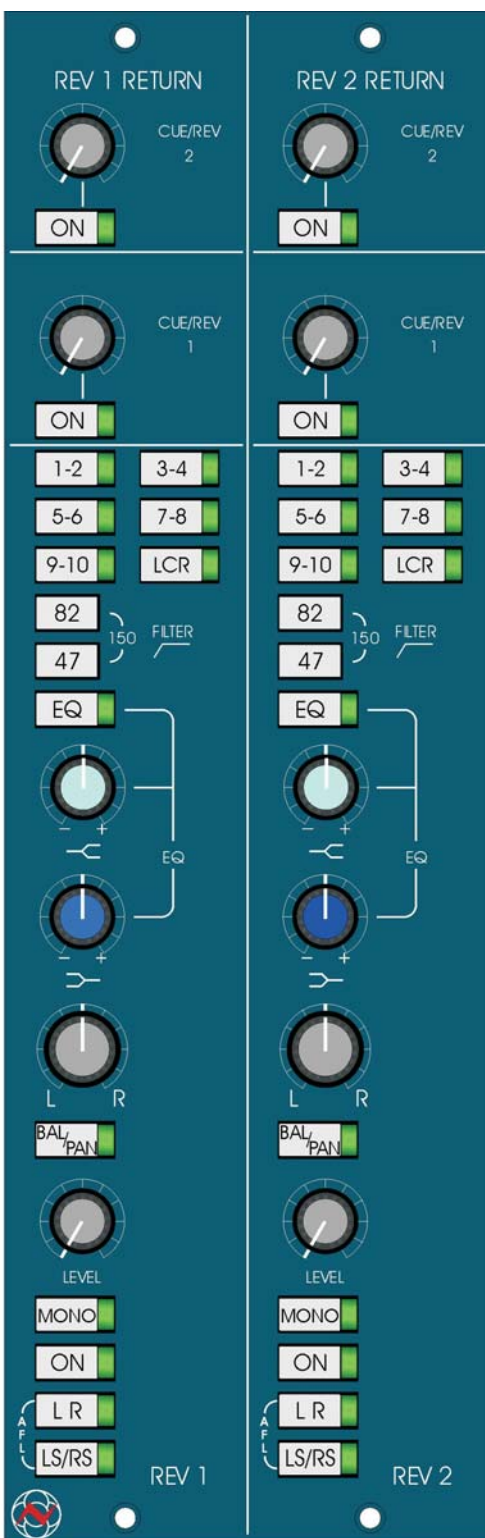
In normal operation (neither Mono or Dual engaged), stereo cue mixes can be sourced using the Aux buttons 1-2, 3-4, 5-6, or 7-8, MON, PATCH 1, PATCH 2 or mix busses 1-2 & 3-4 (or 2trk option). The cue is stereo and it's controls include a level control and a balance control. The level control is 0dB in hand (cut only) and the balance provides + -6dB either side.

When the MONO button is engaged, odd and even sources are summed to both left and right and the level and balance controls remain the same.

When the DUAL button is engaged, all odd numbered sources are sent to the left ear and all even numbered sources are sent to the right ear with separate on/off and level control for each.

When both the MONO and DUAL buttons are engaged, aux sends will act the same as in Dual mode while all other sources are summed to mono and fed to both left and right.

Rev Returns



Reverberation Returns Panel

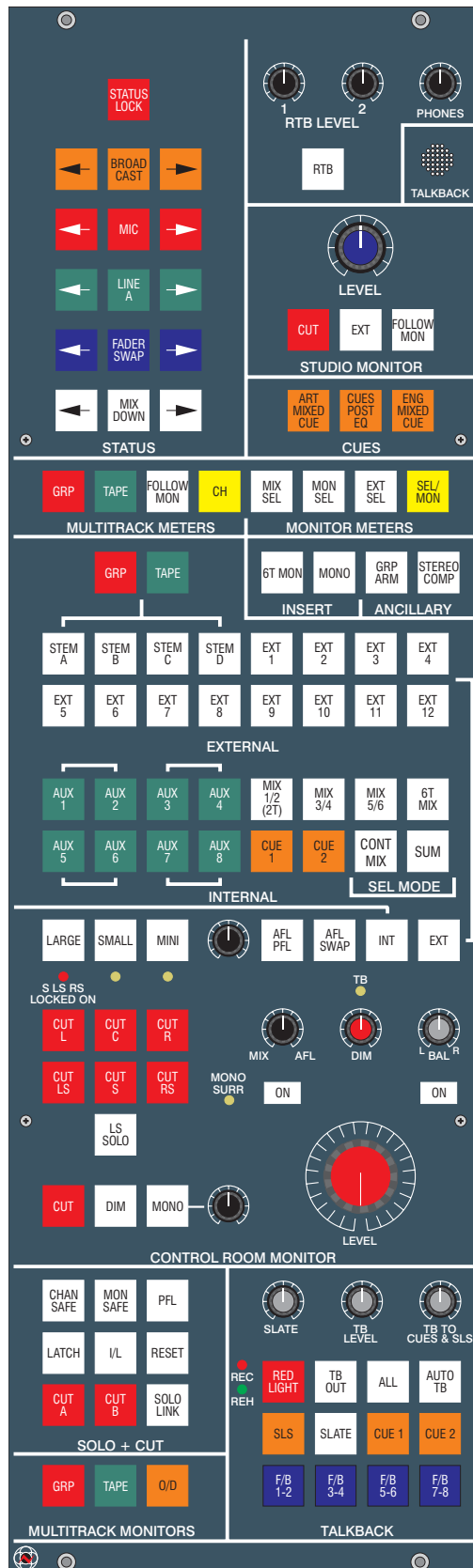
These modules provide facilities for up to four stereo reverberation/effects returns with stereo EQ, filtering, level and balance/pan control.

The rev returns can be routed to any of the main mix busses and can also be mixed into the cue sends to the artist's headphones.

Rev returns can also be automated by patching one of the six Encore group master faders (if fitted with the optional audio boards) in series with the rev return. This gives both an automated fader and automated mute.

Each rev return stereo input can be sent to the L & R or LS RS AFL busses for in context AFL soloing.

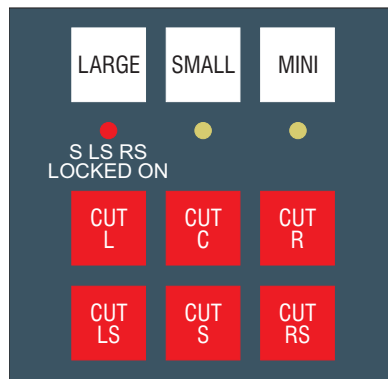
Monitor Panel



The monitor panel provides Master Status, Talkback and Meter Controls in addition to Control Room and Studio Loudspeaker control.

The standard 88RS monitoring system is comprehensive and should provide all the surround facilities required for the majority of users. An optional scoring panel is available for specialist film scoring applications and formats greater than 5.1.

In normal monitoring mode there are no VCA's in the signal path; the volume control is a 24 step switched passive control. VCA'S only get switched into the monitoring path for dim and AFL/PFL monitoring.



*Large, Small and Mini
Loudspeaker Selector*

Control Room Speaker Selector

The 88RS has outputs for 3 sets of loudspeakers (Large, Small and Mini). There are facilities for all 3 sets to be surround format, sharing the same rear speakers. The large speakers can be any format up to 5.1 or 7.1 (with the optional scoring panel) and the small and mini speakers can be up to LCR or 5.1. Each speaker in each set can be individually level trimmed.

Selecting the small or mini loudspeakers will normally cut the surround speakers allowing the small and mini speakers to be used for stereo or LCR auditioning. Alternatively the surround speakers can be locked on for use with the small and mini speakers by pressing the LARGE key twice.

This will toggle the red (S LS RS LOCKED ON) LED below the large loudspeaker button on and off.

The 3 speaker selector keys are interlocking. When the large speakers are selected, Return Talkback (RTB) can be switched to the small and mini speakers with the RTB switch.

Pressing the SMALL key deactivates RTB to Small L and R but not Mini.

Pressing the MINI key also deactivates RTB to Mini L and R but not Small.

The trim controls below the small and mini speaker selectors give +/- 6dB trim relative to the large speakers.



Control Room Monitor
Level Controls

Control Room Monitor Level Controls

These controls set the level of the control room monitor loudspeakers.

The main volume control is a ganged, stepped attenuator that controls the surround sound volume without using VCA'S. The audio elements of the switch keep each speaker output to within +/- 0.2dB of each other.

Balance Control

The switched balance control has a +/- 3dB adjustment range (0dB in mid position) and only operates on the L and R monitor loudspeakers.

DIM Control

The electronically latching dim switch (below the CUT switches) has an associated variable dim level control with a range of 0dB to -35dB.

There is an external dim function available on the remote connector that when operated will dim the monitoring to the master dim level (0dB to -35dB range) and make the dim lamp glow half lit.

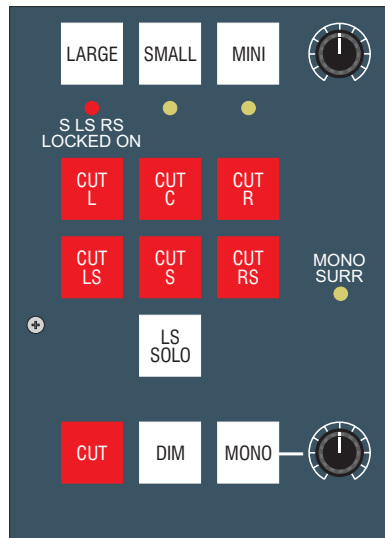
Operating the engineer's or producer's talkback will also dim the monitor to the preset level and make the dim lamp glow half lit.

If TB or EXT DIM and Main dim are operated together the dim attenuations are added.



There is also a preset option where the TB controls will operate the main monitor cut instead of the dim.

These controls are not recallable.



Monitor Cuts and LS Solo

Monitor Cuts

CUT L, CUT C, CUT R etc. These keys are used to control the Monitor Loudspeaker Cuts - whichever speaker set is in use. The master CUT switch will cut all the speakers together and can also be operated from a remote control. The master cut will illuminate the individual speaker cut switches to half brightness.



If any individual cuts were already selected then they would remain cut whether the master cut is operated or not operated.

CUT S (LFE or Sub. Cut) - When 4T is selected as the console mode this will cut the S loudspeaker and also half light the lamp irrespective of what other cuts may be applied to that cut.

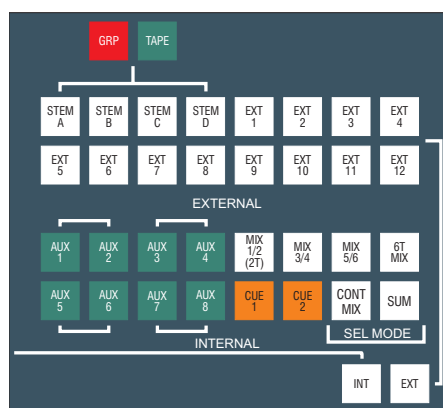
LS SOLO - This switch is used to turn the speaker CUT switches into speaker SOLO switches.

When LS SOLO is on, pressing any of the LS Cut keys will cut all the speakers apart from the one pressed.

The action of the Cut keys in LS SOLO mode is momentary, so releasing the CUT button will cancel the solo.



LS Solo function is not available in master cut, EXT, or TB option cut mode, and if one or more of the cuts were already operated then pressing the LS Solo button will not change that state, only pressing another cut would change the rest of the buttons to solo.



Internal/External Monitor Selectors

Monitor Source Selector

Monitor selector switches are not automatable or recallable.

The monitoring sources are separated into sources internal to the console (such as aux outputs and main mix busses) and sources external to the console (such as replay machines).

SEL Mode

There are two modes in which the internal and external selectors interact. These are selected with the SUM switch.

I/L Mode (not SUM)

In this mode the internal selector switches are interlocked with each other and the external selector switches are interlocked with each other, so one selection may be made in each group.

This allows easy comparison of any desk output with any external source using interlocking INT and EXT keys to toggle between the pre-selected sources.

When EXT is selected, the selected external source will be fully lit and the pre-selected internal source switch will be illuminated at half brightness. However when INT is selected the pre-selected external source will still be indicated at full brightness as it may be in use as the source for the studio loudspeakers or monitor meter.

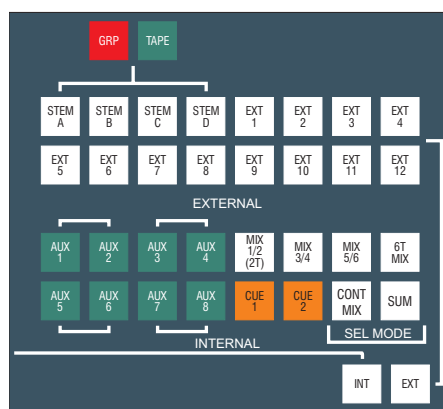
Mix Mode (SUM)

In this mode only the Aux switches are interlocked with each other, Cues 1 & 2 are interlocked with each other and 6T MIX is interlocked with the other MIX buttons. All other selector switches, including the INT and EXT group masters are independently latching. This allows virtually any combination of sources to be mixed together on the control room monitor outputs.

This mode is useful for “mixed comparison” monitoring when, for example, it is necessary to hear the music mix on the console outputs at the same time as a dialogue mix coming from an external tape machine.

CONT MIX

In this mode it is possible to hear the 6T mix in 3 separate stored pairs with 1/2 in the front left and right loudspeakers, 3/4 in the centre and sub loudspeakers, and 5/6 in the rear LS and RS loudspeakers. So you can hear the “in context” monitoring. In this mode the mix 1/2, 3/4 and 5/6 facilities will be half lit to show state.



Internal/External Monitor Selectors

Internal Monitor Selector

This set of buttons is used to select the internal monitor source in the following way:

Aux 1 to 8

This set of switches are always interlocked with each other in mono or stereo irrespective of the sel mode selected. They select the appropriate Aux O/P signal after the jack insert point. The auxiliaries can be selected and cancelled as mono or stereo sources by just pressing one switch (for mono) or two together (for stereo).

If Aux 1 is already selected and Aux 1 and 2 are required as a stereo pair, then pressing Aux 1 and 2 together will leave Aux 1 selected and add Aux 2 as the RHS of a stereo pair.

Similarly, if Aux 1 and 2 were already selected, deselecting just Aux 2 would leave Aux 1 on, which would force the monitor of Aux 1 out of both L and R speakers.

Mix 1/2, 3/4, 5/6, and 6T Mix

This set of switches selects the main mix outputs after the output insertion jacks. The operation depends on the SEL mode selected (CONT MIX or SUM).

When ST (stereo), 7.1, 5.1 or 4T is selected on the reassign panel, Mix 1/2, 3/4 and 5/6 will behave as regular stereo sources appearing on the L and R speakers in both the I/L and SUM modes. Selecting 6T will route busses 1/2 to L and R, 3/4 to C & S, and 5/6 to LS & RS. If SEL mode is set to SUM, INT6, other stereo or surround sources will be mixed onto the front and surround speakers respectively.

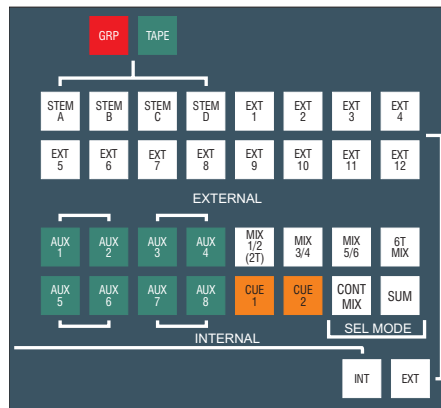
If the monitor is selected to CONT MIX then MIX 1/2 will appear on the L and R speakers, but MIX 3/4 will appear on the C and S speakers and MIX 5/6 will appear on LS and RS. 6T will be as before, with the 6 busses routed to the 6 speaker outputs. This would be the same effect as selecting MIX monitor mode and pressing MIX 1/2, MIX 3/4 and MIX 5/6 in SUM and CONT MIX format.



Regardless of the monitor SEL mode, selecting 6TMix will always de-select any other mix output selection.

Cue 1 & 2 or Cue 1/2 and Cue 3/4 (for 4 Cue option)

These two switches are also always interlocked with each other regardless of the monitor SEL mode. They select the cue outputs after the cue output insertion jacks and can be mixed with any other source in the SUM monitor SEL mode.



Internal/External Monitor Selectors

External Monitor Selector

Of the external sources, stems A-D (GRP and Tape) are 6-wide inputs, EXTS 1-3 are 6-wide and the remaining sources, EXT4-12, are stereo.

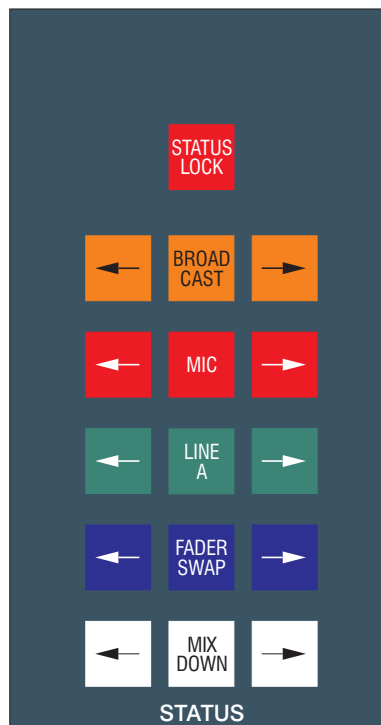
If the console is fitted with the optional Scoring Panel then the external Stems A-D are 8-wide.

STEM A-D and EXT 1-7 have I/P access from insert points on the patch. EXT 8 - 12 are customer wired from connectors in the rear of the monitor section of the console.

The STEM A-D switches are meant to support external stem recorders. The interlocked GRP and TAPE switches above the stem switches allow the operator to select either the sends to the recorders (GRP) or the playback from the recorders (TAPE).



The Stem A-D Group output sources on the external selector of the monitoring system are not directly connected to the main mix outputs as you may expect. These sources are fed from customer wired multiway varicon connectors which can be accessed using the Stem A-D output patch points on the jackfield. This allows maximum flexibility for the record outputs.



Master Status Panel

Master Status

The master status switches in the top left of the master section control the basic modes and input selection of the console. They are protected by a STATUS LOCK switch to prevent inadvertent operation. (This button is not recallable).

Each side of the console can be switched between modes independently using the arrow switches. The centre keys switch the whole console. This allows the console to be configured with a separate monitor section for example.

The console modes are covered in detail in the Configuration Section of this manual.

Broadcast

Allows simultaneous broadcast and multitrack recording. The small fader will control the multitrack mix and the large fader will control the broadcast signal.

Fader swap is automatically engaged when BROADCAST is selected, Fader swap can be cancelled whilst broadcast is still engaged.

Mic and Line A

These switches are used to select the channel inputs across the console. The selection can be reversed on individual channels using the input section C/O switch, they are also automatable.

Fader Swap

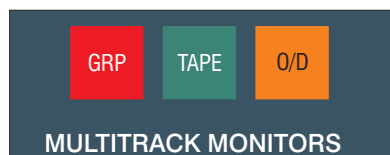
The normal power-up state (multitrack recording) is for the large fader to be in the channel path and the small fader to be in the monitor path.

The fader swap function reverses this condition across the console.

Mixdown

In Mixdown mode the channel path comes from the multitrack return and is directed to the main mix busses via the routing buttons at the bottom of the channel strip. The monitor path comes from post the channel fader and is directed to the multitrack pan and routing keys at the top of the module (so that the small fader can control additional effects sends on the multitrack busses).

BROADCAST, MIC, LINE, FADER SWAP and MIXDOWN are all recallable.



Multitrack Monitors

Multitrack Monitoring and Overdubbing

The interlocked MULTITRACK MONITORS switches at the bottom of the Monitor Panel work with the GROUP, TAPE and O/D switches on individual I/O channels to control the I/O module monitor path sources across the console.

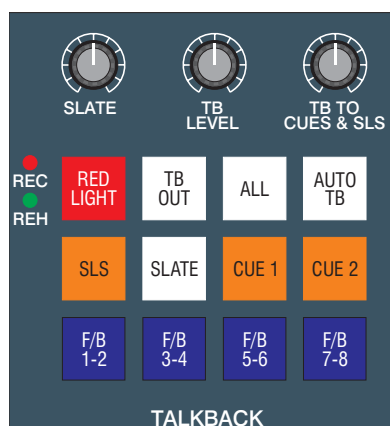
GRP selects multitrack sends and TAPE selects multitrack returns.

In overdub and grp arm mode the modules that have the individual overdub pushbuttons pressed are monitored as multitrack send. All other modules are monitored as multitrack return.

For a full description of the overdub operation, please refer to the **Console Configuration Section** of this manual.



RTB Talkback



Talkback

Talkback

A talkback microphone is located at the top of the monitor panel. There is also provision for an external producer's talkback mic (with on/off switch) to be mixed in to the talkback send. Both talkback mic pre-amps are equipped with limiters.

The talkback routing is at the bottom of the module and includes auto talkback to the studio (whenever the tape machine is stopped or spooling, so the artist doesn't feel isolated).

There are three separate talkback level controls for Slate; Cue and studio loudspeakers; and other destinations (the patchbay switched and unswitched outputs and the foldback (aux) outputs).

The TB OUT key in the talkback matrix sends talkback to the TB Switched Output on the jackfield. The ENG T/B OUTPUT is unswitched talkback and is continuously present.

The two RTB controls at the top of the monitor panel control the Return Talkback level from two inputs on the jackfield. These inputs are turned on with the latching RTB switch and are routed to the mini and small loudspeakers.

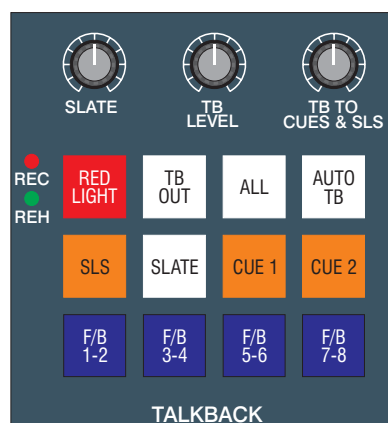
All the talkback keys are momentary, except the AUTO TB and TB OUT keys which are latching. Operating any talkback key dims (or cuts if this option has been pre-configured) the control room speakers.



The AUTO TB key changes CUE 1 and CUE 2 into latching switches.

Slate

The Slate key routes talkback and a 30Hz tone at a preset level to the multitrack and main mix outputs. The 30Hz tone is audible when an analogue tape is dropped against the tape heads while spooling.



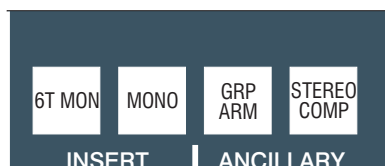
Talkback

Red Light

The RED LIGHT key is used to indicate REHearse or RECord status. It is a momentary key toggling between REH, REC and OFF. In record mode SLS TB is inhibited and the SLS speakers are cut. The SLS TB inhibit and SLS cut do not occur in Rehearse Mode.

Phones

Located next to the RTB controls this control is for the headphone socket located in the left leg of the console and is fed from the Left and Right loudspeaker monitor.

*Cue Controls**Inserts and Lt Rt Return*

Cue Sends

The switches in the CUES section of the monitor panel control the feeds to the headphones and to the control room monitors when overdubbing. For a full description of the operation of these switches, please refer to the **Console Configuration** section of this manual.

ART MIXED CUE sends a mix of multitrack send and multitrack return to the monitor prefade cues from the I/O modules that have their individual O/D keys selected.

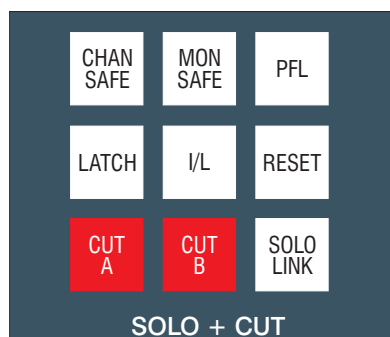
Switching the control room monitor to cues allows this mix to be monitored.

CUES POST EQ switches the prefade cues from monitor paths switched to tape post EQ. This allows backing tracks to be heard on the headphones with the same frequency/dynamic correction as the control room monitor mix.

ENG MIXED CUE allows the engineer to monitor a mix of track send and return similarly to the Artist's Mixed Cue Signal.

GRP ARM

Operating GRP ARM and selecting individual channel O/D switches will allow the master O/D control to switch between Group/Tape on those nominated channels. This allows monitoring of chosen console group outputs when the multitrack machine is parked.



PFL and AFL (solo safe)



AFL and Mixed Solo

PFL/AFL

PFL (Pre-Fade Listen) and AFL (After Fade Listen) are enabled by setting the central solo mode switches to AFL (CHAN or MON SAFE) or PFL.

The PFL bus is mono and the AFL is stereo, or surround if the channel LS RS routing button is selected, or LCR if the channel LCR routing button is also engaged. LS RS AFL can also be switched to the L and R speakers to check and balance the surround image. A mixed solo control allows the LCR AFL to be mixed with the main monitor signal and the relative levels adjusted, so the solo can be heard in context.

AFL/PFL level control. This pot has a 0dB to -35dB range .

AFL/PFL switch. This latching switch is lit when Channel safe and channel solo are selected or Mon Safe and monitor solo are selected. This also indicates that solo has been switched on to the main LS monitors.

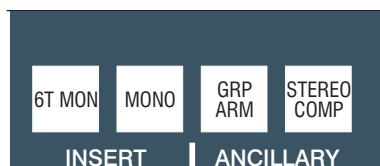
The AFL SWAP switch routes the AFL LS & RS bus to the L and R speakers.



This locking switch is only available in Chan or Mon Solo Safe Mode.

Mixed Solo

This switched control blends the LCR AFL signal and selected monitor source. The operator hears full AFL at one end of the travel and full MIX at the other end. It is only active in Solo Safe mode (AFL or PFL) and not AFL LS RS.



Inserts and Lt Rt Return

Surround Inserts

There are two inserts available in the monitor path and also the ability to monitor the encoded stereo signal (Lt Rt) when a Dolby Surround matrix is being used. The first insert, which can be up to 5.1 wide, is after the INT/EXT monitor selector switch and before the AFL/PFL switching point (ie the soloed signal will not pass through the inserted matrix). The second insert is mono and is directly after the monoing amplifier, which in turn is directly after the surround insert and Lt Rt monitor return. The mono insert is intended for an Academy filter.

MONO

The mono signal is the sum of all the active mix busses, ie just the L & R busses in stereo mode with the other busses cut, or all the busses in 5.1, 7.1 (if fitted) and 4T mix modes. The mono mix in stereo mode can be monitored on both the left and right speakers. If any of the surround modes are operated the mono'ed signal is routed only to the centre speaker.

The mono mix has its own pre-inset level control. The mono insert send can also be used as a mono record output as the level is unaffected by solos or the main monitor level control

MONO SURR

The MONO SURR trim sets the level that a mono surround signal is fed to the LS and RS rear speakers. It has a +/- 10db range and is only active when the console is in 4T mode.

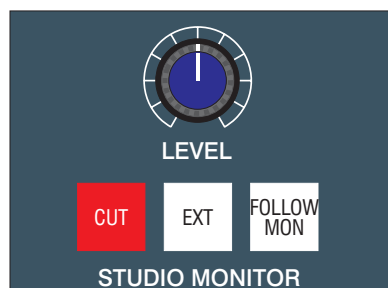
Ancillary Switches

GRP ARM see page 5:18.

STEREO COMP is used to select the Lt Rt output from the Dolby Surround matrix to check for stereo (or mono) compatibility.



The Stereo Comp switch only functions in 4T mode.



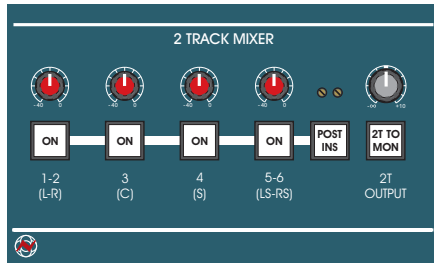
Studio Monitor controls.

Studio Monitor

The studio monitor can be switched to follow the same source selected for the control room monitors or can be switched to follow the External monitor selector.

The studio speakers are automatically cut when the RED LIGHT pushbutton in the TALKBACK section is engaged.

2 Track Mixer



2 Track Mixer

The 2T down mixer is a valuable tool for making high quality simultaneous mixes from the surround outputs of the 88RS console.

The source of the feeds to the 2T mixer can be pre fade (POST INS button not selected) or post fade (POST INS button selected). This allows for the 2T mix output to have a "clean feed" none 5.1 output level dependant program or a mix of what is being recorded to the main 5.1 record machine.

There are four level controls with 0dB in hand and ON / OFF buttons that control the signal feeds to the 2T mixer from L & R, Centre, Sub and LS-RS console mix outputs.

Contributions from the L & R mix inputs will feed the 2T L & R outputs respectively.

Feeds from the Centre and Sub will be fed to both L & R of the 2T mixer outputs.

Contributions from LS-RS mix inputs will be again fed to the 2T L & R outputs respectively.

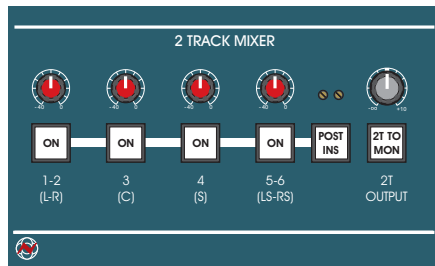
2T L & R pre fade output jacks are supplied for processing to be applied across the 2T mix prior to the 2T output level control.

The 2T output level control will control the final overall level of the 2T mix. This control has +10dB in hand but can be set to 0dB in hand if necessary by adjusting the panel mounted trim pots to the left of the 2T output level control.



These trims (left for left 2T output and right for right 2T output) can also be used to trim the 2T output level if necessary.

If required there is an option to control the 2T output more accurately, such as when producing the "final" 2T down mix by substituting the 2T level pot for a stereo fader.



2 Track Mixer

Monitoring of the final 2T mix output post the 2T output jacks is achieved by selecting the 2T TO MON button. This will flash and send the 2T signal to the 6T monitor where it will appear instead of mix 1 and 2 on the internal selector, provided (2T) mix 1 and 2 and internal are selected.



If this style of monitoring is not favoured then the 2T post fade output can be cross patched into a spare external input and monitored that way.

Metering of the final 2T mix output can be simply achieved by selecting the 2T MTR button on the Aux Meter Panel. This will cancel any other selection showing on the main meters and display the L & R 2T output level.

The final output of the 2T mixer can have tone/talkback injected via tone to mix and slate functions.

Monitor and Facilities Fader Section

This section is 16 fader widths wide and is normally fitted (from left to right) with the following:

1 Stereo Main Output Fader

used for left and right mix output.

2 Mono Main Faders

used for centre and mono surround or LFE.

1 Stereo Fader

used for stereo surround.

1 optional Stereo Fader

if Scoring Panel is fitted for LE, RE.

6 Group Faders

These are master faders, normally without audio passing through them. As an option audio boards may be fitted with inputs and output on the patch. This allows the level of external devices, eg rev returns to be automated. A and B Mute master faders are also an option, see page 4-4.

Automation masters

The Automation Master panel and Events Master panel are described in the Encore manual.

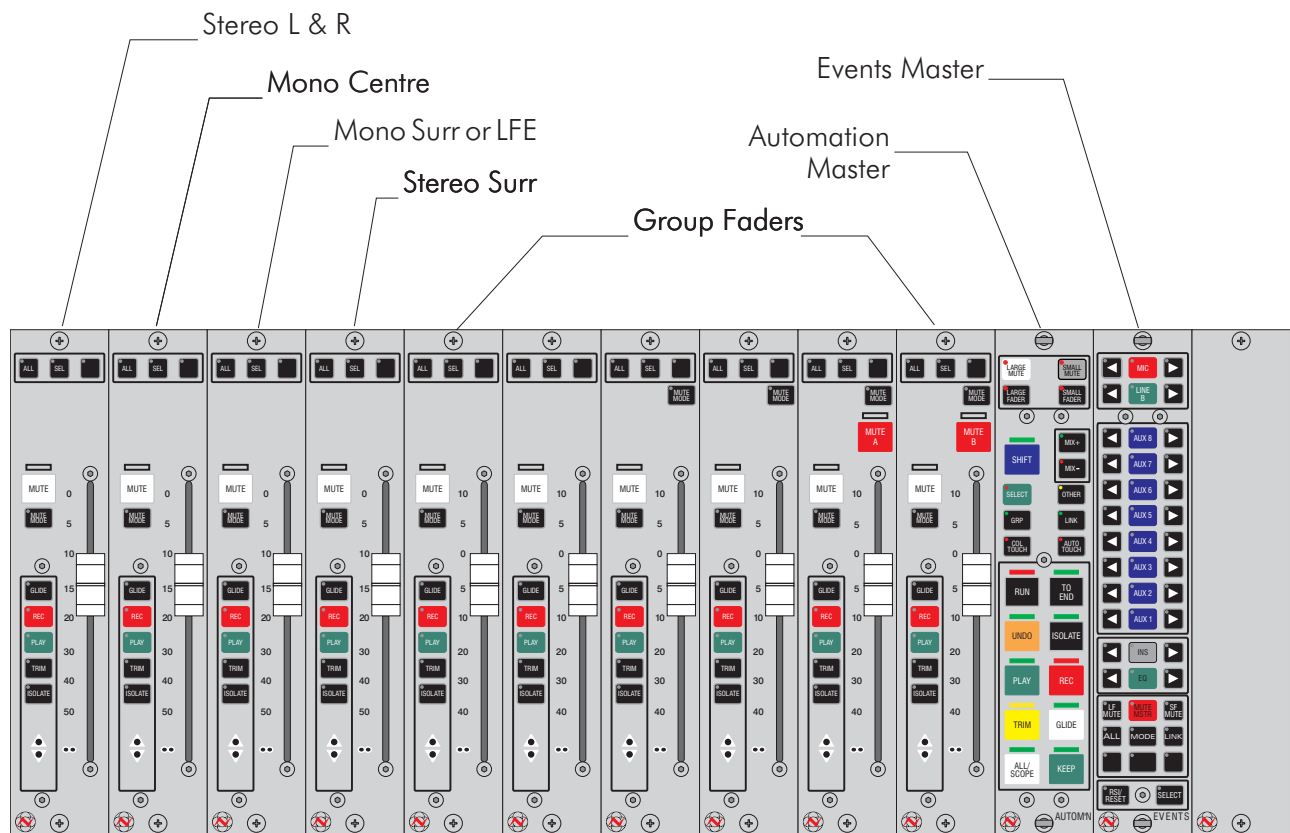
1 Blank Fader Panel

If the optional LE/RE fader is not fitted.

The remaining area is taken up with the Encore trackerball.

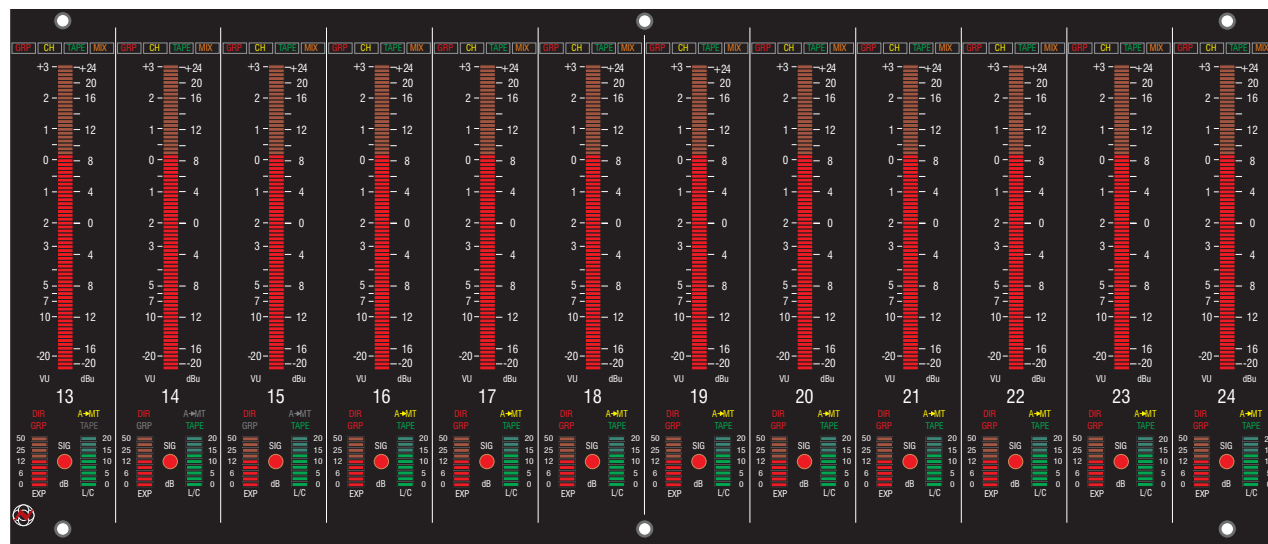


Output faders can be mono or stereo for L, R, C, S, LS & RS and always stereo for LE & RE if fitted. This allows for more or less groups to be fitted as circumstances dictate.



Monitor & Facilities Fader Section

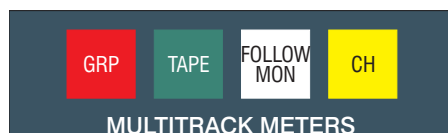
METERING



Multitrack Meters

The 88RS meterbridge features high resolution multi-mode multitrack meters on channels and a comprehensive centre section for metering mix, monitor and auxiliary outputs.

Multitrack Meters



Monitor section
Multitrack Meters

Using interlocking centre section switches located on the monitor panel, the channel meters are switchable between tape sends (GRP), tape returns (TAPE), Channel input (CH) or to follow the individual modules' monitor path input selection (FOLLOW MON). Indicators in the meter modules indicate the source selected.

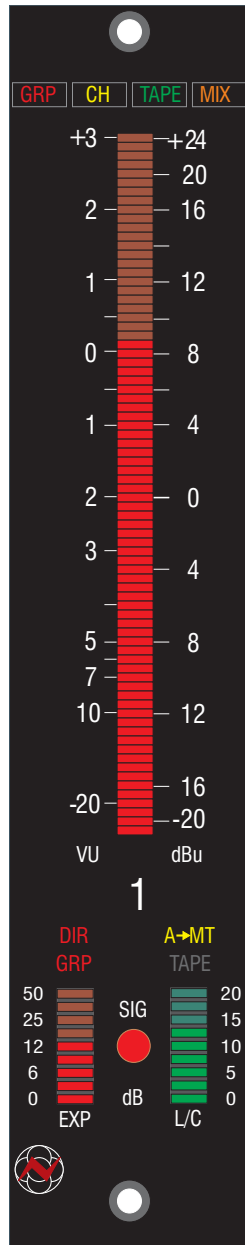
When switched to master channel input, the meter point will normally be after the mic/line selector and before the group switch. However it is also possible to individually select the MT meters to channel input via Encore, but if the direct-input-to-fader facility is used, the meter point will automatically switch to this input.



Both direct to fader and channel input selection can be found in Encore in the toolbar.

Stem meters (optional)

On the re-assign panel, the MT METER switch will switch the main mix busses (before the re-assign matrix) on to a preset section of the multitrack meters either side of the console. The channel meters will indicate MIX.



Multitrack
Meter

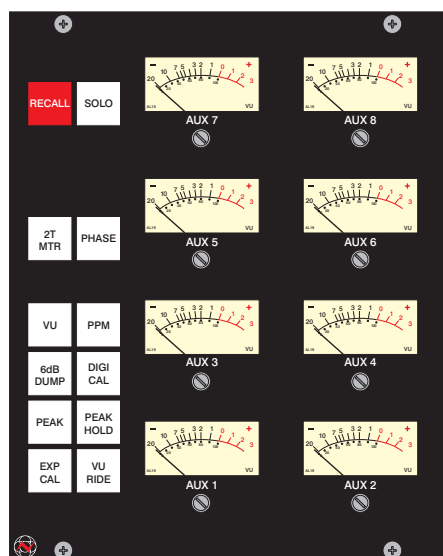
Channel Status

Below the channel meters a hidden till lit display gives key channel status information – Direct input to fader (DIR I/P), one of the auxiliaries routed to the multitrack busses (A→MT) and the monitor input selection (GRP or TAPE).

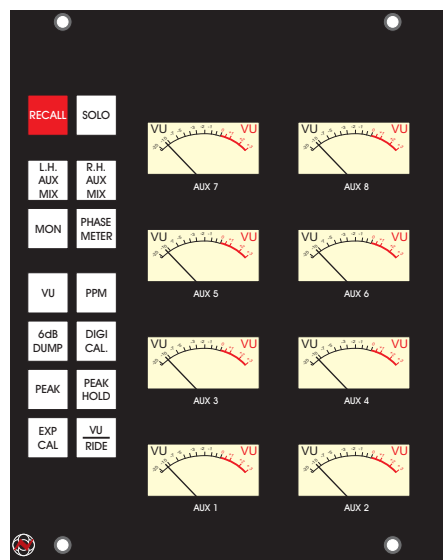
Dynamics Meter and Signal LED

Two 9-segment LED level indicators show gain reduction for the limiter/compressor and expander/gate. A SIGnal LED with adjustable threshold (-30 to +26 dBu) simultaneously monitors the channel and monitor path signal levels pre cut switches, together with the channel signal post the group switch. This is normally used to indicate potential overload conditions at key points in the module. The level at which the LED illuminates is set by a control at the top of the oscillator panel in the centre section.

Auxiliary Meters



6T Aux Meter Panel



8T Aux Meter Panel

8 moving coil VU meters show the level of the 8 auxiliary sends.

Solo and Recall Indicators

The solo indicator illuminates when a solo switch has been engaged anywhere on the console.

RECALL illuminates when the Recall system is scanning the console controls. During this time the console is muted.

Phase switch

Switches on the phase meter below the monitor meters in both 6T and 8T systems.

MON switch

Switches phase meter input from Left Right patch to Left Right monitor LS outputs.

Operating Level

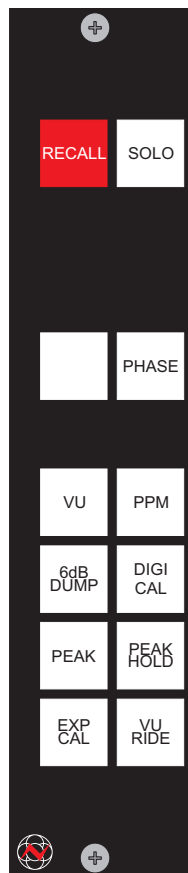
The VU and PPM meters meet international standards for scales and ballistics. The PPM scale shows the absolute level in dBu, whereas the VU meter shows the level relative to the operating level in dB. The operating level is preset to +4dBu, +6dBu or +8dBu. This also affects the EXP CAL function described below which enlarges the scale during tape machine alignment to show signal within + or - 1.2dB of operating level.

Normal practice with analogue tape is to peak to 0VU (unseen transients will peak higher) or to 8dB above operating level with the PPM meters. So the VU meter LEDs glow brighter (bright up) above 0VU and (normally) the PPM meters' bright up point is 1 LED (½ dB) below 8dB over operating level (eg at +11.5dBu when the operating level is +4dBu).

Digital tape does not have the same compression characteristics as analogue tape has as it saturates. Digital tape just clips over-modulated signals, causing distortion, so metering peaks is more critical. When recording with digital tape the average level sent to tape varies according to the programme type. If the programme material is well controlled, the level to tape is higher to maximise signal to noise performance. (Especially with 16bit systems). If the material is unpredictable, a lower level is used to allow sufficient headroom for peaks. Usually levels to and from digital tape machines are greater than those used with analogue machines.

The 88RS allows for both analogue and digital recording techniques by providing a 6dB dump facility for the VU scale and an alternative bright-up point for the PPM scale.

Multitrack Meter Controls



Meter Controls

The mode controls for the multitrack meters are located on the auxiliary meter panel.

VU & PPM

These switches set the meter ballistics, using the scales marked on the left or right of the meters.

BRIGHTNESS

The intensity of the meter LEDs can be adjusted by holding the VU switch down. The meters will step through 4 alternative brightness levels.

6dB DUMP

This switch works in VU mode only and reduces the signal level to the meters by 6dB (useful when sending higher levels to digital multitracks for example).

DIGI CAL

This switch works in PPM mode only and changes the bright up point of the meters to a higher preset level to allow easier monitoring of potentially clipping signals when working with a digital multitrack. To set the bright up level, hold down the PPM switch and use the digi-cal switch to step through bright-up levels of +14, +16, +18 or +20 dBu.

PEAK

Allows easy monitoring of transients by holding the most recent peak on a single LED for about a second before decay (unless superseded by a greater peak). Peak works with both VU and PPM metering.

PEAK HOLD

This function is the same as Peak, but the peak level is displayed indefinitely, or until Peak Hold or another mode button is pressed.

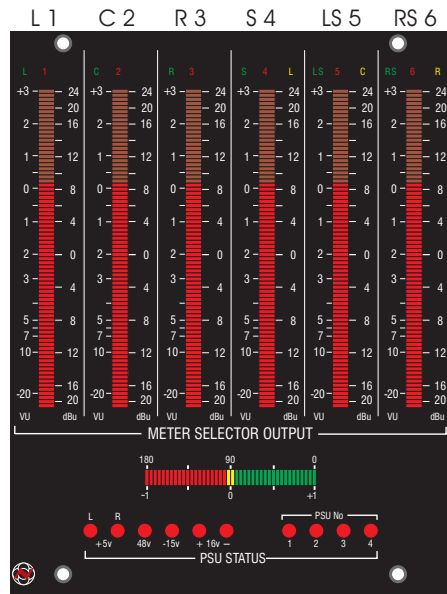
EXP CAL (+4 dB REF)

This switch works in VU mode only. It changes the scale of the meters for line-up purposes to show signal level plus or minus 1.2dB of 0 using the -12 to +12 dB region of the PPM meters with clear indication of whether the signal is below or above zero.

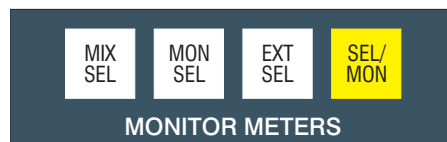
VU RIDE

Displays the VU level as a solid bar up to the 0 VU mark with the peak level as a flying dot above the VU level. Using the 6dB dump on the VU scale normally allows the VU display to fit comfortably below the 0 mark. When used in conjunction with Peak or Peak Hold, it is the PPM peak that is held.

Monitor 6T Output Meters



Monitor Meters



Monitor section meter controls

Six bargraph meters are provided for metering the main outputs and other sources as selected by switches in the monitor panel in the centre section.

8 bargraph meters are provided if the console is fitted with the optional Scoring Panel.

Hidden till lit indicators above the meters indicate the format of the signals being displayed (L, C, R or (bus) 1, 2, 3 etc). The mix bus format is controlled by the reassign panel mode switches.

Phase Meter

Below the monitor meters there is a phase meter which follows the left and right monitor output.

PSU Status LEDs

The LEDs only illuminate when there is a problem with a power supply. There are four LEDs to indicate which PSU has failed and additional LEDs to show which rail has failed: phantom power (+48V), logic power rails (+5V L & R, -15V) and audio supply rails (+16V and -16V).

The monitor meter modes (PPM, VU, HOLD etc) are controlled by the multitrack meter mode switches.

The monitor panel meter control switches are interlocking:

MIX SEL

This displays the main mix outputs as they appear on the External Sources Record patch points, ie directly at the main outputs and before the monitoring selector and associated inserts.

MON SEL

This displays the monitor selector outputs, after the insert points, AFL/PFL switching and monoing circuitry and before the control room monitor level, dim and cut circuitry.

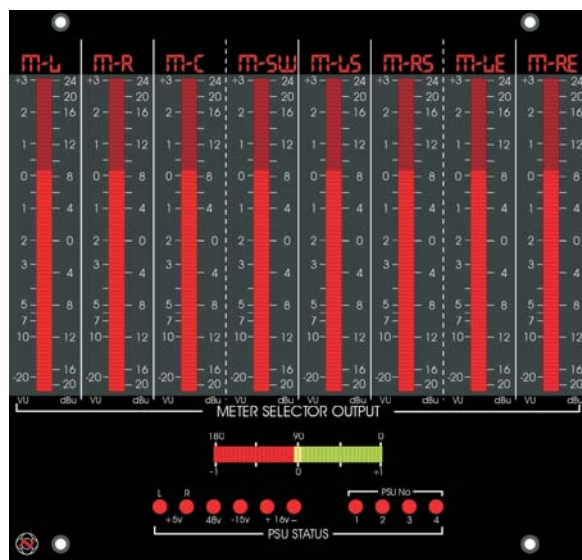
EXT SEL

This displays the output of the external monitor selector, regardless of what is actually being monitored on the control room speakers.

SEL/MON

This uses the left 3 meters to display the meter selector outputs and the right 3 meters to display the monitor selector outputs (post AFL, as above). The meters show L & R in stereo mode (meters 2 and 5 unused), or LCR in a surround mode. This is useful for metering console outputs and mix machine return levels simultaneously.

Monitor 8T Output Meters (optional)



8T Monitor Meters

Eight bargraph meters are provided for metering the main outputs and other sources as selected by switches in the monitor panel in the centre section.

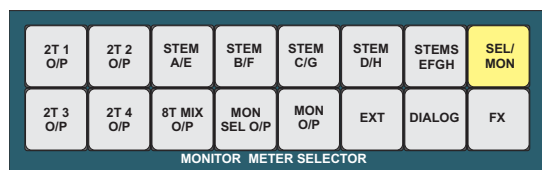
Dot matrix displays above the meters indicate the format of the signals being displayed (8T1-8, 8TL, 8TR, 8TC etc.). The mix bus format is controlled by the reassign panel mode switches and the monitor meter selector.

Phase Meter

Below the monitor meters is a phase meter which follows the left & right monitor outputs when fitted in a 6T monitor section and left & right monitor outputs or a stereo patch input when fitted in an 8T monitor section. Selection of on/off and source for the phase meter can be found on the Aux meter panels for both types of monitor.

PSU Status LEDs

The LEDs only illuminate when there is a problem with a power supply. There are four LEDs to indicate which PSU has failed and additional LEDs to show which rail has failed: phantom power (+48V), logic power rails (+5V L & R, -15V) and audio supply rails (+16V and -16V).



Monitor section meter controls

The monitor meter modes (PPM, VU, HOLD etc) are controlled by the multitrack meter mode switches.

The monitor panel meter control switches are interlocking:

2T 1-4 O/P

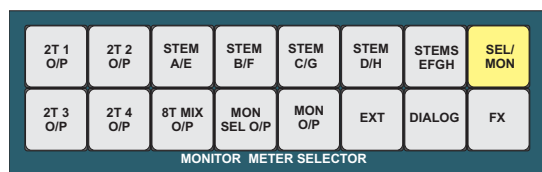
The interlocked selection of these buttons displays on meters 7 & 8, the individual 2T outputs as they appear on the post 2T output insert jacks.

STEM A/E, B/F, C/G, D/H

These display the monitor mix inputs when mapped to stems as they appear post bus tape switching, but pre trim and mix level setting.

STEMS EFGH

This control changes the stem A/E, B/F, C/G & D/H select buttons into 2 distinct banks. When stems EFGH is not operated then operating A/E, B/F, C/G or D/H STEM will show stem A, B, C or D on the main meters. However if stems EFGH is **now** operated then operating A/E, B/F, C/G or D/H STEM will show stem E, F, G or H on the main meters.



Monitor section meter controls

SEL/MON

This uses the first 3 meters to display the meter selector outputs and the second 3 meters to display the monitor output selector (post AFL, as above). The meters show 1, 2, 3 (LRC) in stereo mode and LCR in surround mode. This is useful for metering console outputs and mix machine return levels simultaneously.

8T MIX O/P

This displays the main mix outputs as they appear on the External Sources Record patch points, ie directly at the main outputs and before the monitoring selector and associated inserts.

MON SEL O/P

This displays the monitor selector outputs pre the insert points, reduction, monoing and AFL/PFL switching circuitry.

MON O/P

This displays the monitor selector outputs after the insert points, reduction, monoing and AFL/PFL switching circuitry but before the control room monitor level, dim and cut circuitry.

EXT

This displays the output of the external monitor selector, regardless of what is actually being monitored on the control room speakers.

DIALOG

This displays the 3 wide dialogue inputs as they appear pre the input level and trim controls.

FX

This displays the 6 wide effect inputs as they appear pre the input level and trim controls.

Encore Screen

The Encore screen is used to display information about automation and to run the Recall software. Full details are in the separate Encore manual.



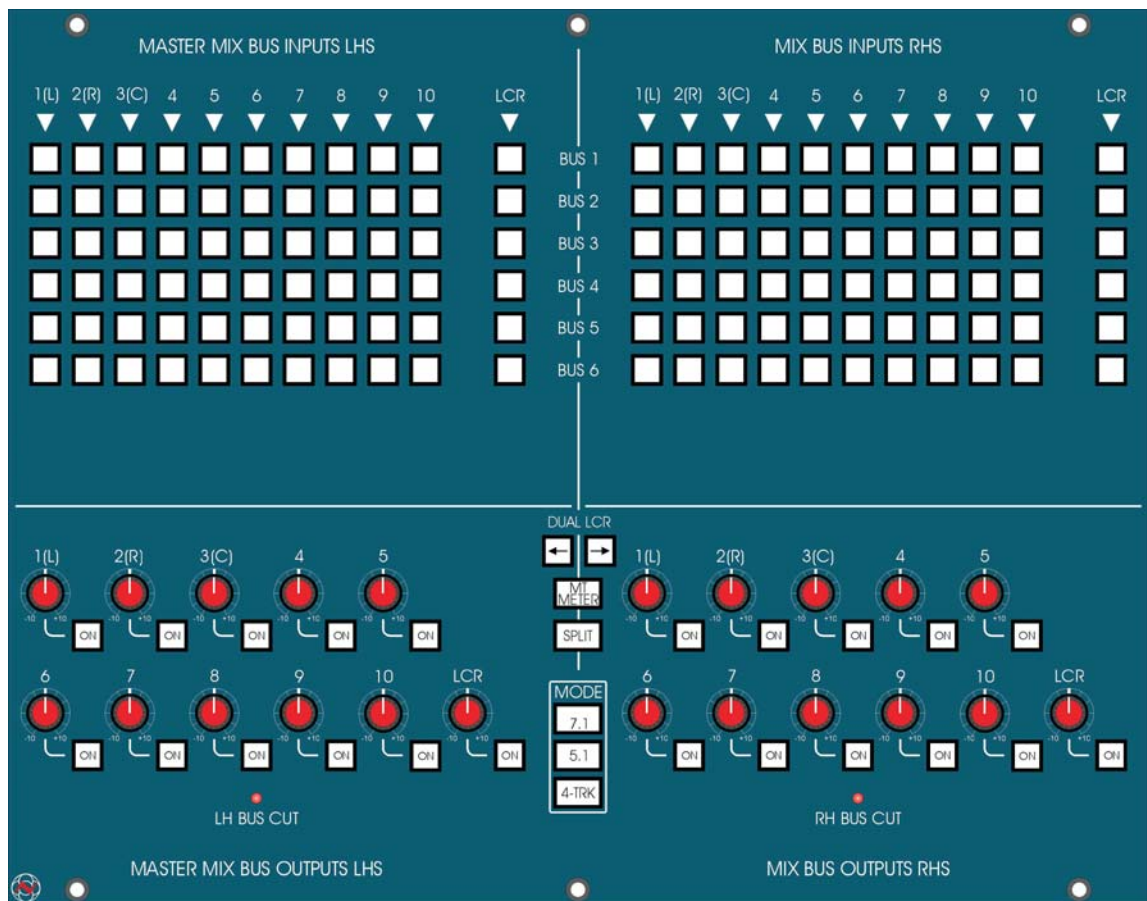
SURROUND: ROUTING & MONITORING

The 88RS is designed for ease of use in both stereo and surround mixing. The standard monitoring system is designed to handle formats of up to 5.1 wide. Formats up to 7.1 can be monitored using the optional new scoring panel.

Unlike similar large format analogue consoles, 88RS offers true LCR panning from the channel modules, in addition to conventional stereo panning.

Reassign Matrix Panel

The reassign matrix controls the main mix busses for the desired combination of stereo (LR) and LCR outputs. As standard, the left side of the reassign matrix governs both sides of the console. Using Split Mode, each side of the console uses it's own independent reassign matrix allowing separate LHS/RHS surround stems to be printed separately yet monitored simultaneously.



Reassign Matrix

Main Mix Signal Flow




Both the channel and monitor paths from each input module can route to the four plus one LS RS (9-10) stereo and one LCR main mix busses. Using the optional DUAL LCR arrow switches on the re-assign panel, stereo busses 1&2 and 3&4 can be combined to create a second LCR bus on busses 1-3. (This may be useful if mixing for Dolby EFX cinema format that uses both LCR front and LCR rear speakers, or just for creating alternate front mixes). The arrow switches allow the busses on the left and right side of the console to be configured independently.

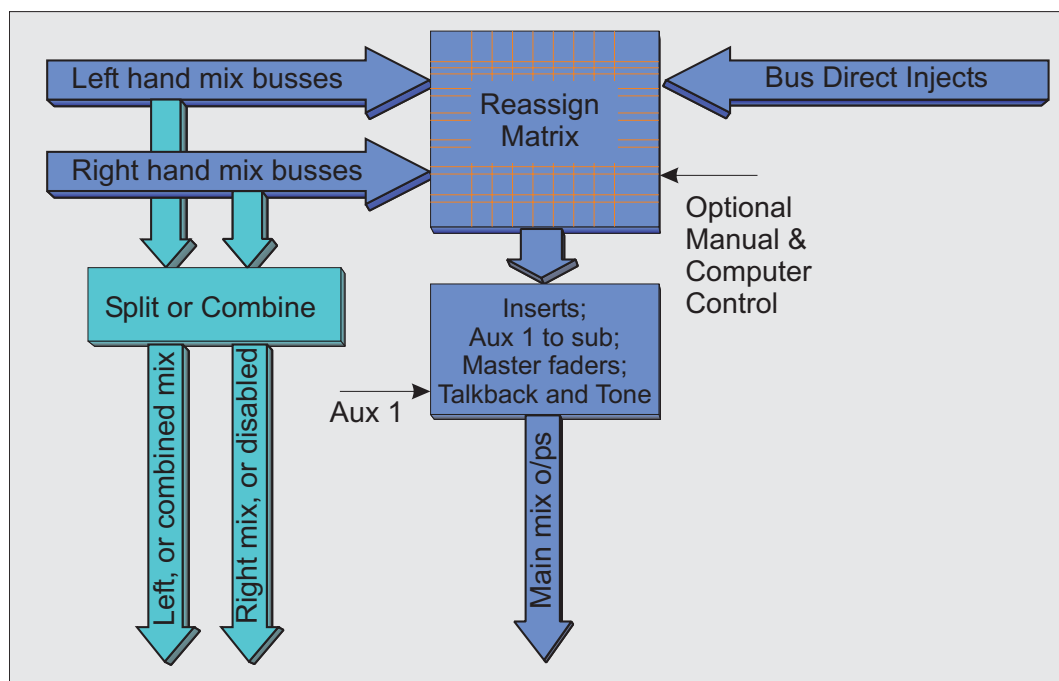
These mix busses are brought to mix output jacks on the patch via level trims on the re-assign panel and talk back and tone switching on the monitor anel. They are also fed into the reassign matrix.

The mix busses from the left and right side of the console can be combined into a single (pre reassign) multi-format console output, or they can be can be split (using the split switch on the reassign panel), allowing independent left and right side pre-assign console outputs.

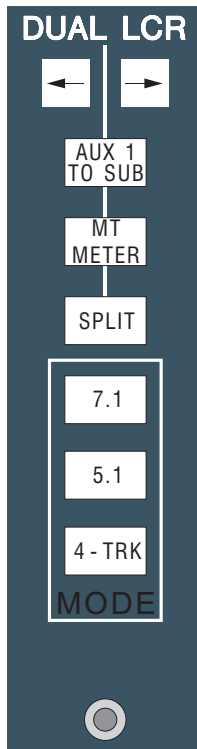
The outputs of the reassign matrix are the console's main mix outputs and these are available on the patch as EXTERNAL SOURCES RECORD and on the monitoring system as 6T or 8T MIX on the internal selector.

The 8T/6T reassign mix bus outputs also have patchable direct injects. These are useful for returning ST or LCR groups into the main mix without using up valuable channel inputs.

-  *The External Sources Record Outputs on the jackfield are simply paralleled jacks. Connecting to more than the 6 machines provided for is likely to compromise performance unless adequate buffering is used, or the optional high power Neve output amps are fitted to the console.*
-  *The Stem A-D Group output sources on the external selector of the monitoring system are not directly connected to the main mix outputs as you may expect. These sources are fed from multiway varicon connectors on the customer panel which can be accessed using the Stem A-D output patch points on the jackfield.*
-  *When operating in surround formats busses 9-10 should be routed to LS RS surround loudspeakers by selecting 9-10 to output bus 5 & 6 respectively. This facilitates correct "in position" AFL.*



Main Console Busses, Reassign Matrix, Main Output Busses



Reassign Matrix
Panel switches

Reassign Matrix Panel Controls

The reassign panel operates in stereo mode by default or surround mode when one of the surround format switches (7.1, 5.1 or 4-TRK (LCRS)) is engaged.

Matrix Switches

In stereo mode, when the console is neither split, nor in optional dual LCR mode, the LH matrix allows any console mix bus (except the LCR bus) to be routed to any output mix bus.

The power-up state of the console is stereo mode with console busses 1 to 6 (or 8) assigned to output busses 1 to 6 (or 8) respectively.

The pan controls on the channel modules will pan between the odd (left) and even (right) busses of each pair of busses.

Selecting surround modes will affect which console bus to output bus assignments are allowed.

The matrix always shows the console bus to output bus assignments.

SPLIT

This switch allows the main mix busses on the left and right side of the console to be split with independent pre-assign outputs and independent reassignments from the left and right to the common set of main output busses.

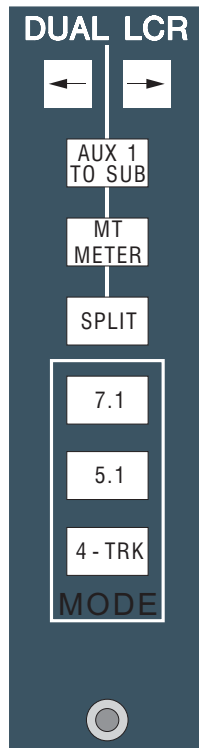
Split will not split the aux busses left and right, this is now done via the SPLIT button on the Split Aux panel.

LCR ← and → (optional)

These switches will only function if the option is fitted and one of the surround modes is selected.

These switches convert busses 1, 3 and 2 to a second LCR bus. The LH arrow switch controls both sides of the console unless SPLIT is selected on the dual re-assign panel, when the arrow switches will affect the LHS and RHS of the console independently. Bus 4 is muted.

When the console busses 1, 3 and 2 are used as an LCR bus, these console busses may only be assigned to their equivalent numbered output bus (1 to 1, 3 to 3 and 2 to 2) which are the console's LCR outputs. Bus 4 cannot be assigned to any output and the remaining console busses can be freely assigned to any output bus within the currently selected surround format (4 TRK, 5.1 or 7.1). (See drawings at the end of this section)



*Reassign Matrix
Panel switches*

Aux 1 to Sub

The AUX 1 TO SUB facility allows auxiliary 1 to be used to create the LFE (Low Frequency Extension, or sub-woofer) mix. The post aux 1 level output is re-introduced to the console via a normalised jack point before the master fader in a 5.1, 6.1 or 7.1 mix. This allows control of the LFE mix independently of the surround mix. There is also an insert provision on the LFE main mix output for an external filter, or low frequency synthesizer.

The standard 88RS Series main output is six signals wide, suitable for formats up to 5.1 (inc. LFE on aux 1). Fitting the optional scoring panel expands this to 8 main outputs, for 7.1 format mixing and the addition of an internal LFE filter on bus output 4.

This switch has no function in 4 TRK mode (LCRS).

MT Meter (optional)

This control switches a pre-set section of the multitrack meters to meter the left and right pre-assign mix bus outputs. The meters are indicated with the legend "MIX".

MODE Switches

These buttons set the overall mode of the console for stereo (when no switches are on), 7.1 (requires scoring panel option), 5.1 or 4-TRK (LCRS). 6.1 format mixing is supported by selecting 5.1, with dual LCR (optional) and AUX 1 TO SUB also selected.

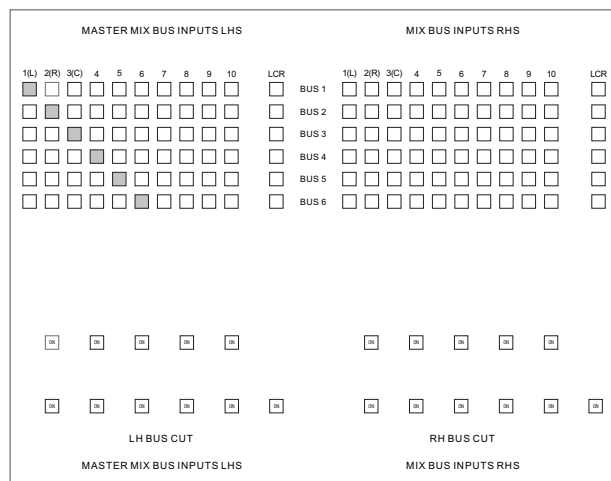
These switches affect the reassign matrix, monitoring and meter routing in ways that are described in each of these sections of this manual.

Mix output trims

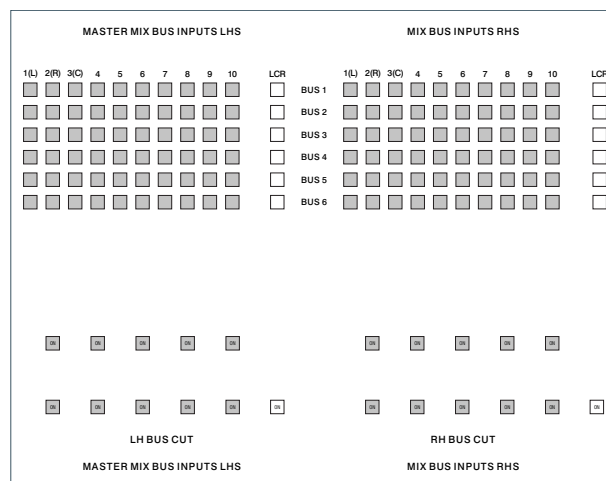
The reassign panel has trim controls for the left and right pre matrix mix bus outputs, the main mix outputs are controlled by the master faders.

These trims can also be factory set to be post re-assign matrix.

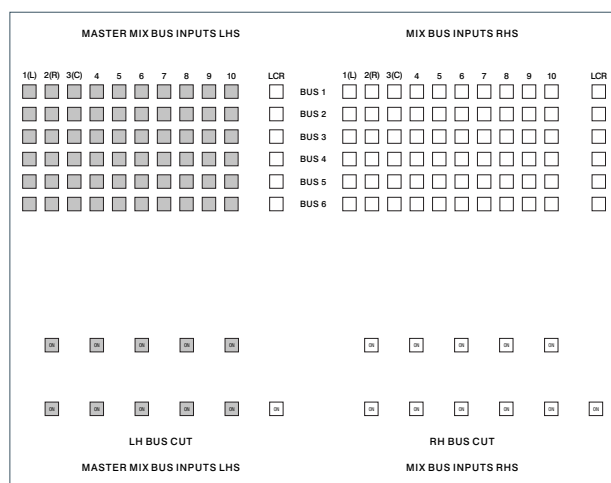
Reassign Matrix Modes



Power-up Mode



Stereo + Split Mode

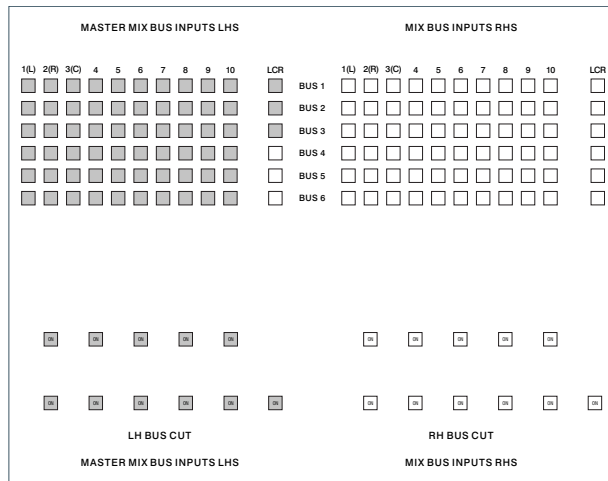


Stereo Mode

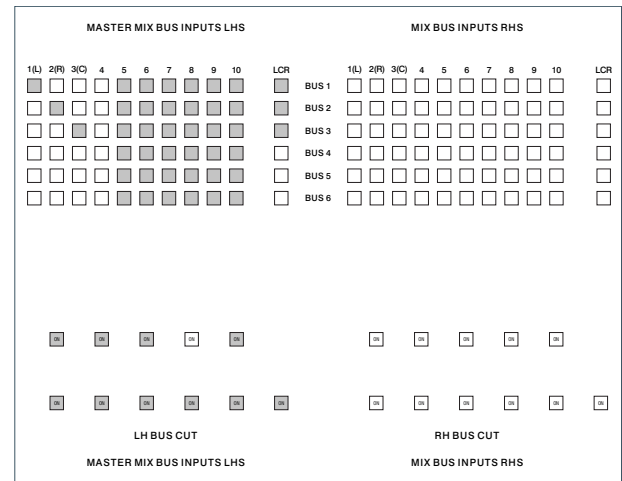
Additional output busses 7/8 are available when an 8T panel is fitted on SP consoles. In this configuration **Power-up Mode** routes input 7 to output 7 and input 8 to output 8.

Stereo Mode makes input busses 1-10 selectable to output busses 7 & 8 on the LH side matrix only.

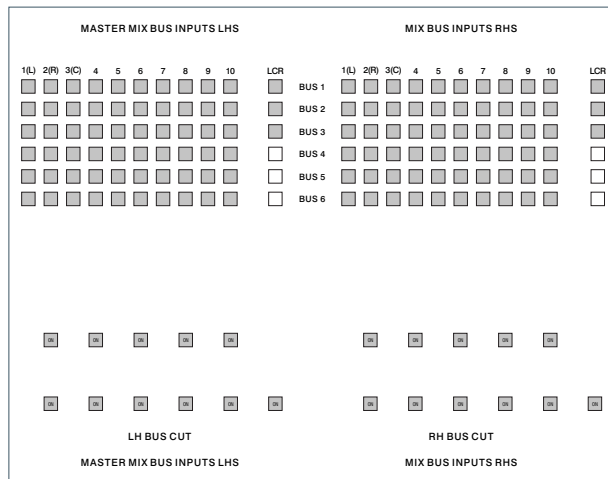
Stereo + Split Mode makes input busses 1-10 selectable to output busses 7 & 8 on both sides of the matrix.



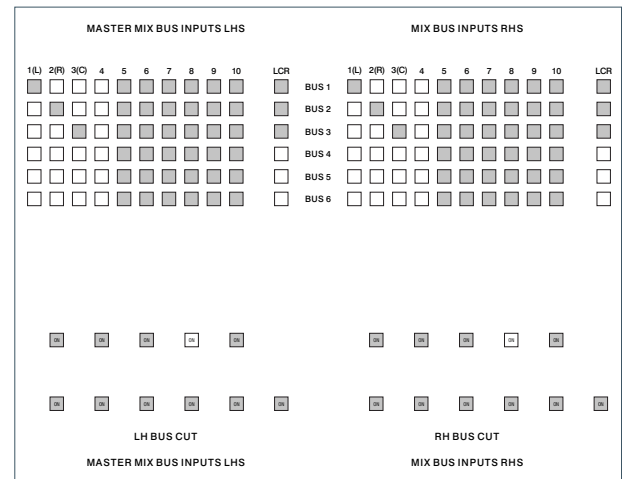
5.1 Mode



5.1 + (optional) Dual LCR Mode



5.1 + Split Mode



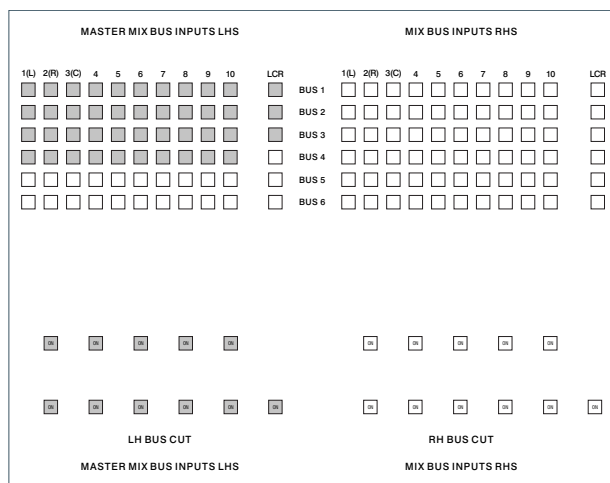
5.1 + (optional) Dual LCR + Split Mode

Additional output busses 7/8 are available when an 8T panel is fitted on SP consoles. In this configuration **5.1 Mode** makes input busses 1-10 selectable to output busses 7 & 8 on the LH side matrix only.

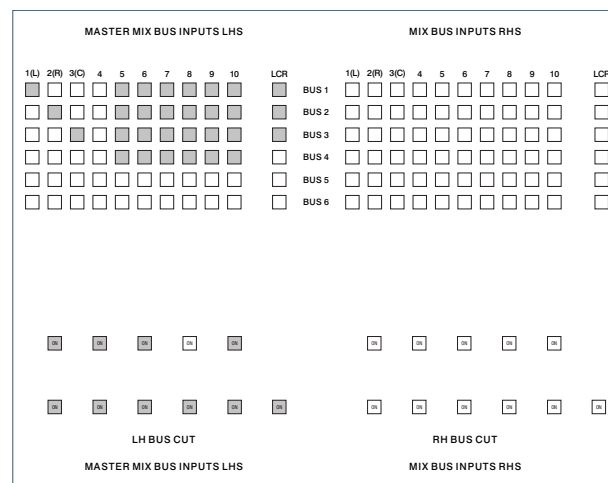
5.1 + Split Mode makes input busses 1-10 selectable to output busses 7 & 8 on both sides of the matrix.

5.1 + (optional) Dual LCR Mode makes input busses 5-10 selectable to output busses 7 & 8 on the LH side matrix only.

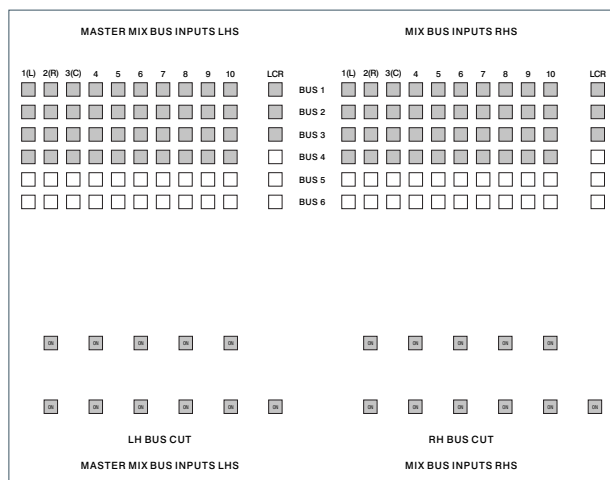
5.1 + (optional) Dual LCR + Split Mode makes input busses 5-10 selectable to output busses 7 & 8 on both sides of the matrix.



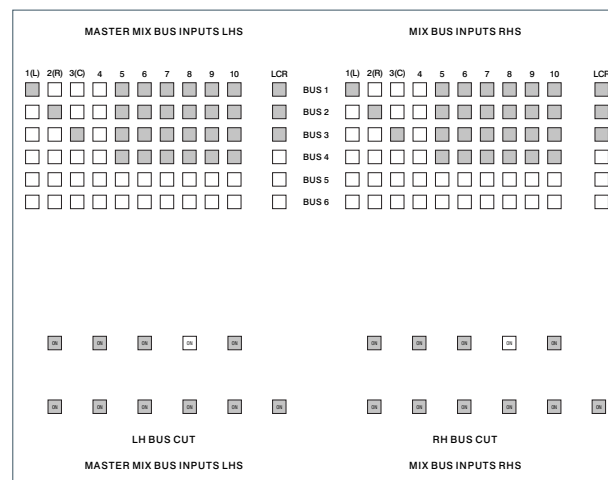
4-TRK mode



4-TRK + (optional) Dual LCR mode



4-TRK + Split mode



4-TRK + (optional) Dual LCR + Split mode

Additional output busses 7 & 8 are available when an 8T panel is fitted on SP consoles. **In this configuration inputs 1-10 are not selectable to output busses 7 & 8 on either side of the matrix in any 4-TR Mode.**

Automated Panning

Linear panning (from any channel to any two busses) may be automated by using the small fader in conjunction with the large fader to create interlinked sends to two busses. Special software controls the relationship between the two faders to ensure a correct pan law. This is a standard feature of the 88RS, but there is also an option to fit two fully automated joysticks to provide free panning between the busses of any surround format.

Fader Panning

To use the large and small faders for automated panning

- Send the same source to both the large and small fader in the channel module.

For example, if in mixdown mode with the tape return feeding the large fader press **TAPE** so that the return also feeds the small fader or use the **CH.IP** mode on the **CH.OP** **CH.IP** button.

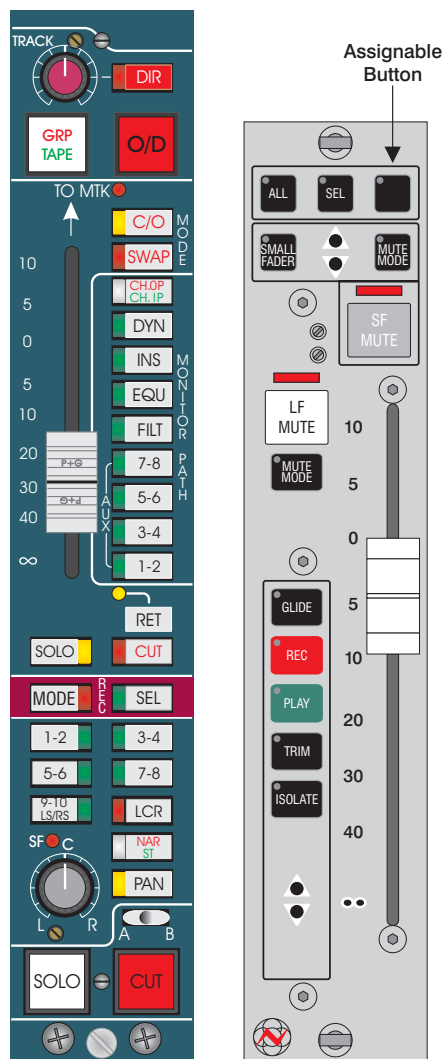
- Route the faders to the two mix busses.
- To continue the example route both faders to **MIX 1-2** and set the large fader pan hard left and the small fader pan hard right so that the large fader is routed to bus 1 only and the small fader is routed to bus 2.

Then set up a group fader to be the pan control (ie, create a pan link).

- Press **LINK** on the Automation master panel.
- Press the assignable button (top right) on the chosen group fader (which will then flash green). If the group fader was previously in an automation mode, it will go into isolate.
- On the channel fader (or faders), press the assignable button which will illuminate green.

The small and large faders are then pan-linked and under control of the group fader. As the group fader is moved up or down, the small fader will follow, but the large fader will move in the opposite direction creating a pan effect.

The centre position of the group fader pan is the -10 position. When the group fader is set to centre, both the large and small faders on the channel will be set to -3dB (or -4.5dB if so set in the miscellaneous preferences of Encore).



Small and Large Faders

When the group fader is moved to either the top or the bottom of its travel, one of the channel module faders will be at the 0dB position and the other will be attenuated, normally to -60dB (corresponding to a narrow divergence). This can also be set to -40 or -50 dB in the miscellaneous preferences for a wider divergence.



The preferences only over-ride the default values when the Encore program has been started.

Moving the large channel fader up or down will also move the small fader by the same amount (in the same direction), making the large fader the overall level control. The pan relationship is preserved.

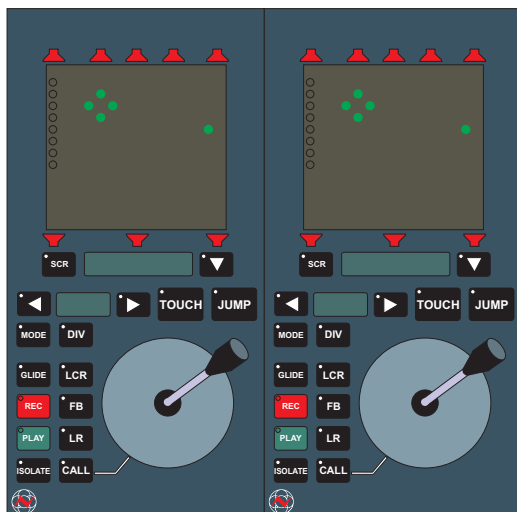
Automation for both small and large fader is controlled from the large fader whenever pan link is on. (Not from the group fader, so no automation coalescence is required). The group fader will however replay any automated pan moves while the pan link is on.

The pan link can be terminated by deselecting either of the assignable buttons, or the master link.



For surround panning, it may be easier to route and pan the faders to MIX 7-8 and reassign these busses to whichever monitor busses are required using the reassign matrix.

Optional Joystick Module



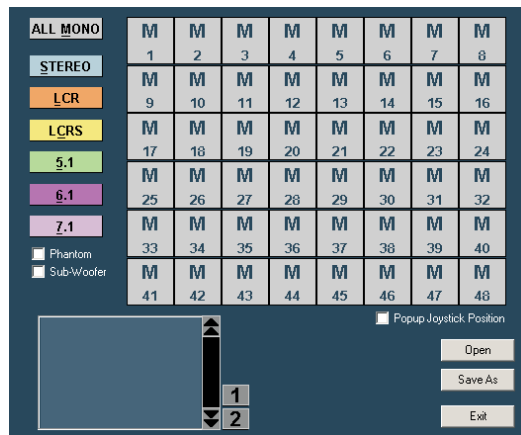
Automated Joysticks

The two optional joysticks are able to pan any channel across the mix-busses in a stereo, LCR, 5.1, 6.1 or 7.1 format. It does this by remotely controlling a set of small faders (the pan set) that control the level sent to each bus in the chosen format. Each small fader controls the individual left, centre, right, left-surround, right surround, left-extra, right-extra or sub-woofer contribution to the mix. This approach couples the flexibility and power of the automated joysticks with the sonic purity of passive gain elements of faders in the signal path.

The system allows multiple pan sets, so that it is possible to pan one channel across all elements of a 5.1 mix for example and at the same time pan another channel across just the front left and right speakers of the mix with a phantom centre.

There are three steps to using the joysticks:

- ☐ Configure a group of small faders to use as a pan set.
- ☐ Set up the console routing.
- ☐ Call the pan set onto the joysticks and start panning.



Configuration Screen

Configuring Pan Sets

This can be done before or after the console routing is set.

- Press the SCR button on either of the joystick modules to open the Configuration screen.
- Using the trackball, click on the required surround format designation box on the left of the screen.

It will go white to indicate that it has been selected.

Decide whether a hard or phantom centre is required, or whether or not a fader is needed for the sub-woofer and check the appropriate box below the format selectors.



The joystick does not control the sub-woofer contribution. It is included in the pan set only for the convenience of having the sub-woofer contribution fader in the same area as the associated pan set.

- Move the mouse pointer over the track display on the right of the screen.

Note that a group of tracks will go white indicating where the pan set is going to be positioned on the console.

- When the correct set of tracks are highlighted, left click to confirm the selection.



"Pan Set" Display

The tracks will change colour according to the format: blue for stereo; orange for LCR; green for 5.1; violet for 6.1 and red for 7.1 and the pan designator (L, C, R etc) will be shown in the box next to the track number. The display will show L, C and R for LCR panning with a hard centre or LP and RP for panning with a phantom centre.

- To move a pan set, left click on it and it will turn back to white and be movable.
- To delete a pan set, left click to turn it white, then right click to delete.

As the small fader mapping progresses the "PAN SET" list will be displayed on the screen showing the relationship between each pan set and the tracks it uses. The pan sets can be given distinguishing names by double-clicking on the default name in the list and over-typing it.

Configure the console routing

The small faders in the pan set need to be fed to the signal to be panned and to be routed to the appropriate mix busses. This can be done as follows:

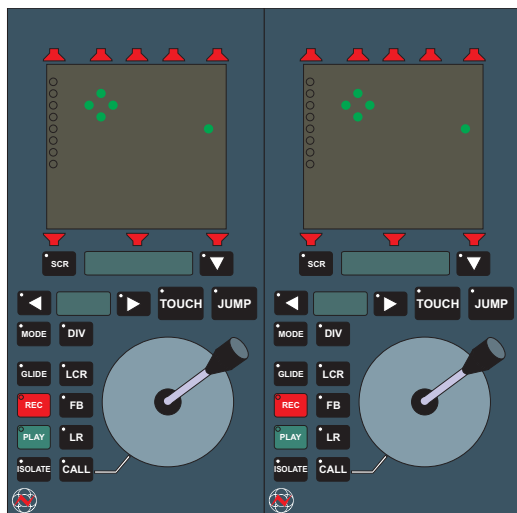
- Route the channel (or channels) that is to be panned with the joysticks to the multitrack busses that make up the pan set.

For example, if the console is in mixdown and channel 20 is to be panned in 5.1 format using a pan set on small faders 1-6, press C/O on channel 20 so that the large fader routes to the multitrack busses and press multitrack routing buttons 1-6.

On channels 1-6, press the Group buttons, so that the small faders pick up the busses fed by channel 20. Route the small faders to the surround busses, eg route channel 1 small fader to MIX LCR and pan left; route small fader 2 to MIX LCR and pan centre etc.

At this point it is useful to check the routing by playing audio through channel 20 and confirming that it appears in the appropriate speakers when the individual faders 1-6 are opened one at a time.

Using the optional joysticks



Joystick module

The joystick module has a matrix display that shows the real position of the panned audio with a diamond shape and the position of the joystick with a single dot. Around the matrix, speaker symbols illuminate to show the format of the pan set being controlled. Below the matrix, two alphas show the name of the panset and the divergence (spread) of the pan.

To select which pan set each joystick controls, use the inverted triangle switch to scroll through the list of available pan sets.

There are then 3 ways of taking control of the selected pan set. Whichever method is used, the faders will initially jump to a valid setting for the joystick control (if not already in a valid position). They will then move in response to joystick movements.

The TOUCH method

➤ Press TOUCH.

Moving the joystick will not affect the audio until it has been moved close to the same position that the audio is already in, i.e. the dot touches the diamond. The joystick will pick up the audio and move it with the joystick moves. This mode is useful for updating an existing mix. It prevents the audio jumping suddenly when the joysticks are activated.

The CALL method

➤ Press CALL.

Moving the joystick will cause the audio to pan immediately, but the audio pan position will remain offset from the joystick position. If the offset is large when CALL is pressed, this will restrict the field through which the audio can be panned. The idea is to move the joystick close to the audio position before pressing CALL.

This method makes it possible to drop the joystick into recording automation immediately the CALL button is pressed, without having the audio jump to the joystick position.

The JUMP method

➤ Press JUMP.

The audio will immediately jump to the position of the joystick. The automation mode takes effect as soon as JUMP is pressed.

JUMP can also be used when the joystick is in Call or Touch mode to bring the audio to the joystick position.

Divergence, which is the apparent spread of the panned source in the sound field, is set using the scroll keys to either side of the lower alphanumeric. Divergence changes can be automated using the MODE switch in conjunction with the automation switches below.

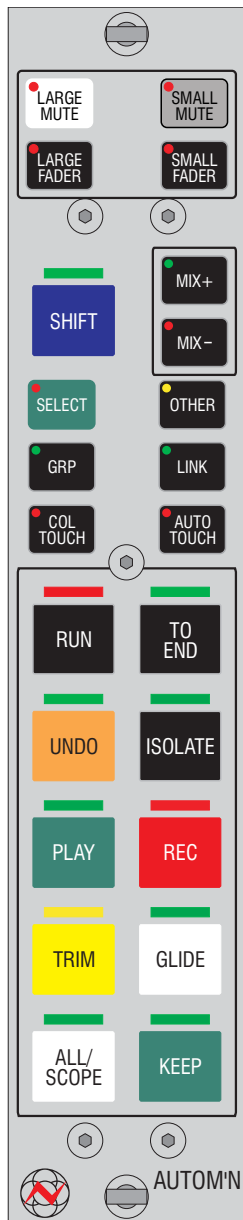
The overall level going to the mix is controlled using the fader in the channel that is routed to the pan set faders.

AUTOMATION & MACHINE CONTROL

88RS has automation, recall and machine control included as part of the Encore package as standard. These topics are covered in the Encore For 88RS User manual.

Global Master Automation

The Global Master Automation module located in the monitor fader area controls the automation modes for the faders and mutes across the console.



*Global Master
Automation Module*

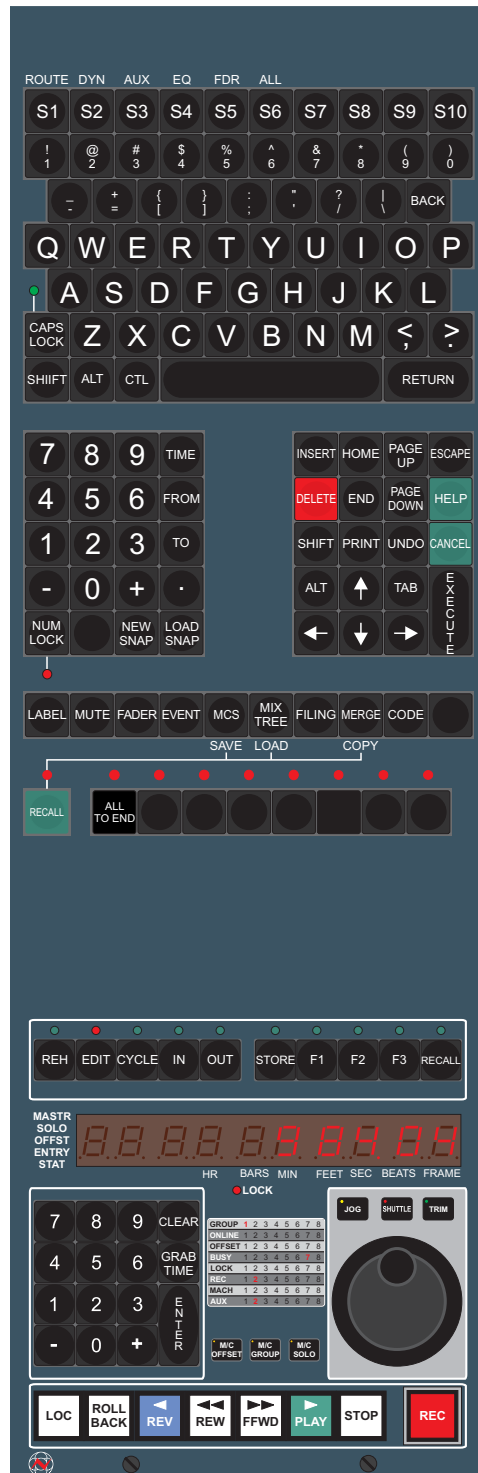
Events Master

The events master is used to control the automation of channel module switches (events). This module is used in conjunction with the Automation Global Master module to set independently for the left and right side of the console.



Global Events

Automation Panel



Automation Panel

The keyboard for Encore is built into the control surface and includes shortcut keys.

The MCS panel provides machine control for up to 8 groups of transports. Each group may be a single machine, or several depending on whether an external synchroniser system is used. The transport keys control the currently selected group.

GLOSSARY

Terms Used In This Manual

AFL (After Fade Listen)

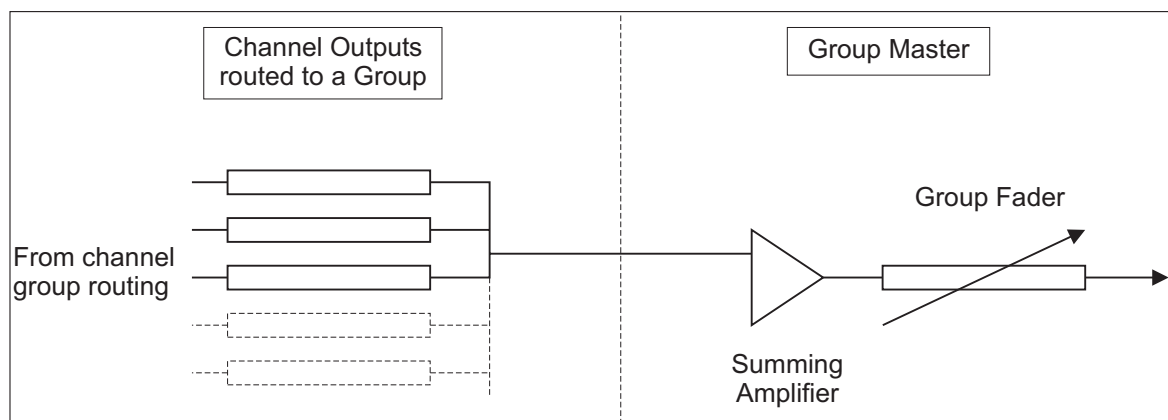
Allows users to monitor individual channels after the fader, without affecting the main outputs. An AFL bus sums all the AFL'd signals and is routed to monitoring. AFL on 88RS is a surround bus to allow monitoring of individual channels in their panned positions.

Attenuation

The reduction in level of a signal.

Audio grouping

Channels in an audio group are mixed together to form a single output under control of a single fader. This differs from VCA grouping, where channels under control of a single fader still have discrete outputs. Tape sends (sometimes referred to as group outputs) are an example of audio groups.



See also CONTROL GROUPING.

Aux

Auxiliary outputs from the console are secondary mix-busses used for foldback and effects sends. Each channel has independent sends with level control to a number of aux busses, which have overall output controls located in the centre of the console. Auxes can be mono or stereo. Effects returns are brought into spare input channels or dedicated Rev returns (also known as echo or aux returns) in the centre of the console.

Bell

Used to describe a 'peaking' equaliser rather than a shelving one.

Bounce

Allows the monitor signal of a particular channel to be routed back to the track assignment busses for 'bouncing down', where a number of previously recorded signals are re-recorded onto different tracks usually with some mixing. Achieved on 88RS by using the small fader C/O switch and large fader cut or (optionally) pulling the group output pot to its up position.

Bus

A 'Summing point' for all signals routed to the same place.

A bus will usually be either a balanced or unbalanced line running most of the length of the console carrying a signal for a particular destination (e.g. 'stereo mix bus' picks up all signals routed from channels to the stereo mix).

Channel

Traditionally a term used for an input path on the mixing console, occasionally used for output channels as well. Also used as a name for the input module as a whole.

In this manual the term is generally used to describe the path from microphone to multitrack tape (where 'monitor' designates the return from multitrack to mix on an in-line console).

Clipping

Clipping occurs when the electrical level of an audio signal exceeds the maximum permitted level, resulting in squaring-off of the waveform and distortion.

Comms

Abbreviation of 'communications' (the talkback between artists and control room).

Control grouping

The levels of faders in a group are controlled from one fader (each maintaining its level in relation to the others), but their outputs remain separate - (i.e. unlike audio grouping it does not involve a single summed audio output for the group). Sometimes called VCA grouping.

Control room monitor

Used to adjust the level and other attributes of the control room loudspeakers independent of the mix output.

Cue

An output from the console which carries a mix of signals to artists for monitoring on headphones.

The 88RS has a flexible cue system allowing the engineer to send artists the appropriate headphone feed at all times.

Cut

A switch to mute the relevant signal from its destination (e.g. the CUT switch on the channel fader cuts that channel from the mix).

Also known as mute.

Echo Returns

Also known as Rev returns or Aux returns, these are dedicated inputs in the centre section of the console.

Effects send

Another name for aux send.

EQ

Abbreviation for EQUALISATION (a means of controlling the frequency characteristics of a signal). Equalisers are a collection of individual filters, usually 4 (4-band EQ).

Fader

A sliding gain control with full attenuation at the bottom of its travel, and in the case of channel and monitor faders, +10dB gain at the top. Output faders have 0dB gain at the top.

Filters

Separate from the EQ filters there are additional high and low pass filters for controlling noise at the input to the channel.

Foldback

Outputs from the console to artists headphones (eg CUES).

Gain

The amount of amplification provided by any stage in the signal chain (negative gain is ATTENUATION).

HPF (high pass filter)

Allows the passage of signal content which is above the filter frequency.

Input module

A physical module which carries an input from an external source and routes it to other destinations on the console.

Jackfield

A collection of sockets carrying signals to and from various points in the console signal chain and external equipment to allow 'patching' of signals from location to location.

Limiter

Used to limit the maximum level of a signal.

This can either be for effect, or to prevent overload elsewhere in the system.

Link

Allows users to couple the dynamics control signal between adjacent channel modules, eg for the dynamics to operate simultaneously on stereo pairs or surround inputs with no image shift occurring.

LPF (low pass filter)

Allows the passage of signal content which is below the filter frequency.

Module

A piece of removable hardware in the control surface of the console (e.g. 'master module' or 'input module').

Normalising

The way in which an output jack (socket) is wired to an input jack so that the source is routed to its “normal” destination when no (patch cable) plugs are in the sockets. A “half normalised” connection allows a listen jack to be inserted without breaking the “normalised” connection - these are normally used in insert and other line level signals. A fully normalised connection is broken when a plug is inserted in either the source or destination socket - these are used on mic level signals.

Null LEDs

Automated faders are provided with null LEDs which point in the direction that the fader must be moved to make its position correspond to the gain of the automation pass.

Oscillator

Produces tones at various frequencies for lining up the system.

It can be routed to a number of outputs on the console.

Pan

Used to position the apparent source of the audio within a stereo or surround sound image.

Parametric EQ

Equalisation with control over each filter's frequency, Q, and level.

PFL (Pre-fade listen)

Monitors signals before the fader without affecting the main mix outputs.

Phantom power

Most professional mics require 48 volts phantom powering (supplied through the mic cable). There is a switch on the input module to turn it on or off.

Post

After the fader. Usually refers to a signal take-off point such as an aux send.

Pre

Before the fader. Usually refers to a signal take-off point such as an aux send.

Q

The Q of a filter is defined as its centre frequency divided by bandwidth (the distance between frequencies where the response is 3dB down on the peak). This affects the ‘sharpness’ of the filter peak or notch.

High Q gives the sharpest response and is used to boost or cut one specific region.

Low Q gives a very broad response and is used when boost or cut over a relatively wide range of frequencies is required.

Return

Additional input to the console.

Usually used for returning effects to the mix.

Reverse

Refers to the swapping of the large and small faders.

Send

An output from the console (see AUX, CUE, ECHO SEND).

Slate

Allows a microphone to be recorded onto tape (sometimes along with a Low Frequency tone) to identify takes.

The LF tone can be heard when winding tape at high speed.

Solo

Allows users to hear an isolated sound and treat it individually (i.e. without hearing the rest of the mix). Solo can be “destructive”, when it affects the main output, or non-destructive, when it affects the monitoring only. AFL and PFL are both non-destructive solo.

Stem

A Stem is a sub-mix output. In film mixing a stem is typically a surround mix of the dialogue, music or effects. In music mixing, stems are more often stereo mixes of the drums, guitar, vocals etc, that are subsequently re-mixed together for a complete surround mix.

Subgroup

An audio or control group that is a part of a larger group.

Talkback

Communications in both directions between artists and control room.

Tape

Selects the multitrack return as the input to the monitor (as opposed to the multitrack send).

Trim

Used for trimming the overall level of the send to the multitrack.

Normally trims the level sent to the track corresponding to the number of the module.

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