The Programmable Equaliser

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The Programmable Equaliser

Introduction

The SSL Programmable Equaliser enables dynamic equalisation and panning effects to be recorded along with timecode information so that these can be accurately replayed, edited and stored for later use. In this section familiarity with the fader mix system is assumed, as the movements of all controls are stored in the same way as fader information.

Facilities

The Prog Eq provides two automated, patchable and independent channels of three band equalisation, which can be switched in or out with the IN buttons. Two programmable pan pots with associated CUT pushbuttons can be used independently from the equalisers.

The LINK button enables both equalisers to be operated as a stereo pair from the left-hand set of controls.

Each equaliser section and pan and cut section has a section status button with associated led status indication. In addition each EQ band and pan incorporates led displays to provide visual indication of its settings.

System Components

The components of the system are:

- the control and display panel - normally mounted in the console
- a rack mounted unit containing the audio and control processing electronics
- the analogue interface boards fitted to the Studio Computer
Using the Programmable Equaliser

Before using the Programmable Equaliser it is assumed that you have or will read the Mix section of this manual, where general aspects of the automation system affecting the Prog Eq are discussed.

The Front Panel

The front panel controls for the EQ section each consist of a centre frequency, Q, and boost/cut control. The high and low bands can be switched to a shelving response by setting the associated Q control so that it is up.

Each control has an led bargraph display. Frequency is displayed by led segments in a vertical row and Q settings are displayed as an expanding horizontal bar which indicates the width of the frequency curve. When a band is switched to a shelving curve, the five left-hand segments of the Q bar are lit. Boost and cut are indicated by a vertical bar; the centre, yellow segment indicates unity gain, boost and cut being represented by green and red LEDs respectively. The pan pots have the same display, green for left and red for right.

Section Status Selection

Each section has its own status select button and indicator leds, which operate in a similar fashion to those on console faders. The statuses which are available on the programmable equaliser sections are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Led Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUAL</td>
<td>no led</td>
<td>direct control of EQ, no data stored or replayed</td>
</tr>
<tr>
<td>REPLAY</td>
<td>yellow</td>
<td>stored data replayed only</td>
</tr>
<tr>
<td>ABSOLUTE</td>
<td>red</td>
<td>absolute control positions stored as mix data</td>
</tr>
<tr>
<td>PREVIEW ABSOLUTE</td>
<td>flashing red</td>
<td>control positions affect monitored audio but existing mix data left unchanged</td>
</tr>
</tbody>
</table>
stored data is replayed until a control is moved to the null point and switched to Absolute. New positions can then be written.

New Mixes

When the tape is parked at the head of a New Mix, following a GOTO or SETUP MIX command, with nothing selected in the Mix Options box the section status buttons toggle the status of each section between MANUAL and ABSOLUTE.

Using Rollback

Press EXECUTE to start the mix and at any point the tape can be rolled back to review the mix so far. As soon as the tape direction changes, the message MIX REVIEW is displayed on the monitor and the equaliser controls enter REPLAY status. Each section of the equaliser can be returned to ABSOLUTE by pressing its status pushbutton and when the tape crosses the point it was wound back, all sections return to their MIX RUNNING status of ABSOLUTE.

The AT TIME JOIN EX command line can be used in MIX REVIEW to program the re-selection of ABSOLUTE status. Level Match should be used if necessary, to prevent level jumps.

Level Match

The Level Match facility for the Programmable Equaliser uses a screen display to indicate the direction in which each control must be moved to match the current mix data. When all the controls have been matched, both status leds for each of the EQ sections will be on.

To enter Level Match in MIX REVIEW, press MIX, then type:

EQ EX

The screen display will be as in Figure 1.
The display follows the layout of the controls. The rectangular bars indicate the position of the control compared to the stored data. A bar at the top means that the control has to be turned down and a bar at the bottom that the control has to be turned up.

When the level is matched, both bars are displayed. Two bars with a gap in the middle indicates that a switch is in the wrong position.

Level Match the pan controls using its section status led indicators as with faders. If more than one programmable equaliser is fitted, the ← → cursor keys can be used to select the display for the required equaliser.
Update Mixes

Edit

At the start of an Update Mix the status of each section will be set to REPLAY. Assuming there are no Mix Options selected, the section status buttons will toggle REPLAY and EDIT status.

EDIT status allows individual controls within a section to be rewritten during an Update Mix.

To rewrite a control position as a mix is playing, press its section status button to select EDIT. Once the mix has started, the reference data for all controls will be played back until an EQ or Pan control is moved to match the mix data i.e. the null point. This can be achieved by using the associated led bargraph display prior to moving the control.

Once the null point is reached, the individual control will switch to Absolute and any new data can be written to the current mix.

In the same way, EQ In/Out and written cuts within the Pan sections may be edited. When the position of the In/Out switch or cut button matches the information from the reference mix, operating these buttons will write new information to the current mix. Note that this is a facility only offered in EDIT status. Do not become totally confused and try to use Play Cuts Only or Revise Cuts. Autotakeover and Immediate Pickup are also non-applicable.

When editing is complete, return the whole section to REPLAY of the reference mix by switching the section status button.

If the tape/film is rolled back, sections in EDIT will remain in EDIT in Mix Review.

To rewrite all controls within a section of the Prog Eq, the whole section may be switched to ABSOLUTE status. Select UA in the Mix Options box. Switch to ABSOLUTE with the section status button. To return to the reference mix, use the status buttons to switch back to REPLAY.
Preview

Preview operates in the same way as it does for console faders. It enables changes in EQ to be auditioned, whilst leaving the mix data unchanged.

A marker next to PV in the Mix Options box on the screen display confirms that PREVIEW is selected. The Prog Eq sections can then be switched to PREVIEW ABSOLUTE at the start of the mix and while in a New Mix they toggle between ABSOLUTE and PREVIEW ABSOLUTE. In an Update Mix PREVIEW ABSOLUTE (as long as UA is also selected) is available. There is no Preview Edit status. PREVIEW ON/OFF may be toggled using the FSM key as with the fader Mix system.

Group Set and Safe Set

Individual sections of the Prog Eq may be set as part of a Group or set Safe as described for faders in the Mix Section.