

Overview Of Audient ASP4816 Desk and Audio Flow



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MMusTech Level 4
The Studio Engineer
Handout #1



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The following pages contain selected pages from the Audient User's Manual. The selected pages give us a good overview of what each function on the channel strip does. There are a few that we can ignore for now; such as 1, 2, 3, and 4 on the Routing and Auxiliaries section.

The first page shows the audio flow of the desk (Figure 1). We can see in that diagram that the audio sent into the desk goes through various options on the input and metering stage. If we look at Figure 2 we can see that the next stage, *Auxiliaries*, is not shown on the audio flow diagram. It might be best to consider these as separate to the main audio flow as this is where we talked about *tapping-off* a supply of the audio to send elsewhere. This will become clearer when we cover auxiliaries in a future lesson.

The next step in the audio flow diagram is the equaliser section. Without the equalisers selected the audio simply passes through unaffected (as in the top boxes of the diagram). With the EQ selected it is then modified in whichever way you/we have decided that the EQ is going to affect it.

The audio is then sent to the selected fader (the short one by default) where we can set its listening level and stereo location (pan).

How the audio is received by the computer and recorded is separate to the way the desk works; this is something pro-tools deals with without the desk having too much involvement. We will cover this in the next handout.

Please take the time to read over the pages in this handout and familiarize yourself with what each button, dial, and fader on the desk does.

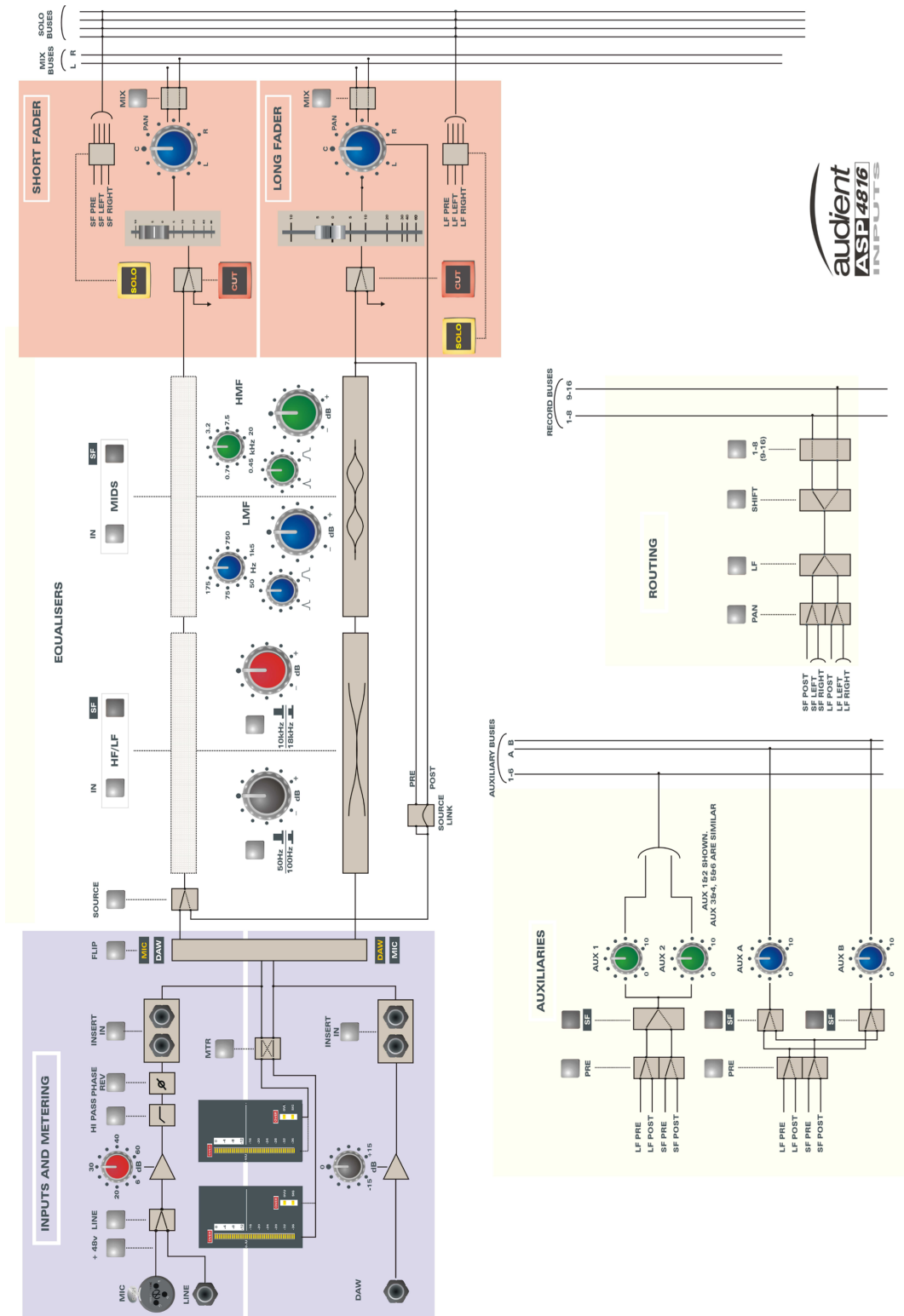


Figure 1 - Audio Flow

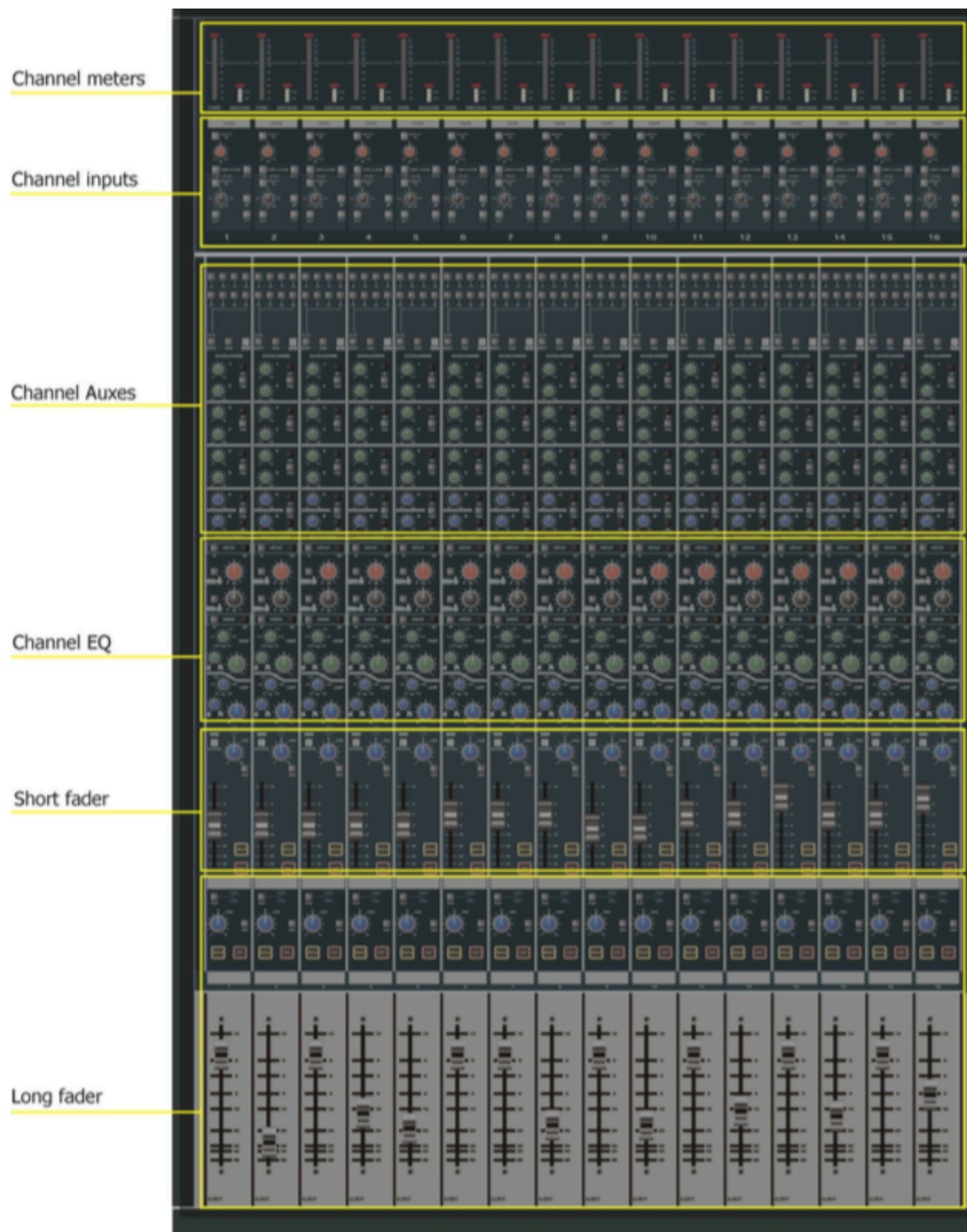
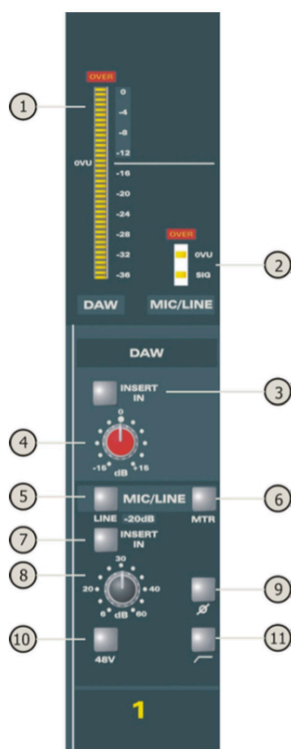


Figure 2 - Sections of the faders.

Console functions.



CHANNEL STRIP



- | | |
|---|--|
| 1 20 Segment meter (normally monitoring the DAW input) | 7 INSERT IN - places an insert point in the MIC/LINE path. |
| 2 3 Segment meter (normally monitoring the Mic/Line input). | 8 Mic/Line GAIN Control |
| 3 INSERT IN places an insert point in the DAW path | 9 $\emptyset$ Polarity (Phase) Reverse Switch |
| 4 DAW Input TRIM control | 10 48V Phantom Power Switch. Turn the loudspeakers down before switching this on or off! |
| 5 MIC/LINE switch - press down to select the line input. | 11 High Pass Filter Switch. A high pass filter can be used to get rid of any unwanted low frequencies that may be present such as air conditioning rumble. |
| 6 MTR - press to show the mic/line input on the large meter and the DAW input on the small meter. | |

INPUT POD

The input pod is the gateway to the remainder of the signal processing of the console. There are three inputs, a mutually exclusive microphone and line input, and a tape input.

Note the different colouring used to identify the different signal paths of the pod. Anything on a light background is associated with the LF path while anything on a dark background is associated with the SF path.

The mic/line input normally sends signal to the SF or short fader signal path of the console while the DAW input normally sends signal through the LF or long fader path of the console unless this is reversed by the FLIP switch.

There are two meters associated with the inputs, a 20 segment 0dBFS peak reading meter showing the DAW input signal and a 3 segment peak reading meter gives an indication of the mic/line level.

Both the MIC/LINE and the DAW inputs have insert points which can be switched in and out of circuit.

The Mic Input has a gain control range of +6dB to +60dB and the Line Input has a range of -14dB to +40dB. Switches allow for Phantom Power, Polarity Reversal and High Pass filtering - enabling rumble and sources alignment issues to be easily dealt with.

The DAW input has a trim control with a range of ± 15 dB.

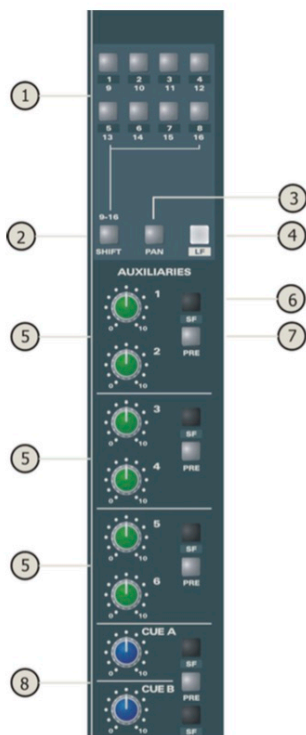
There is a back illuminated number at the bottom of the pod for channel identification.

Figure 3 - The Input Pod

Console functions.



CHANNEL STRIP



- | | |
|--|---|
| 1 ROUTING SWITCHES select the bus outputs that the SF signal is sent to. The first eight switches also route to the 8 sub-groups | 5 LEVEL adjusts the level sent to an auxiliary output. |
| 2 SHIFT gives access to bus outputs 9-16. | 6 SF allows the signal feeding the auxiliary to be taken from the SF signal path. |
| 3 PAN allows the signal to be panned across odd and even buses. | 7 PRE allows the auxiliary signal to be taken pre fader instead of the normal situation where it is taken post fader. |
| 4 LF replaces the SF signal being sent to the routing switches with the signal from the LF signal path. | 8 CUE A and B are identical in operation to the others but can be individually switched into the SF path. |

ROUTING and AUXILIARIES

The routing section takes the signal from the SF path and routes it to the bus outputs which in turn are usually connected to the inputs of a DAW or other recording device. Buses 1 to 8 also have a parallel path and feed the 8 sub-groups. These can be used to pre mix channels together for final mix down or as sends to a DAW or other recording device.

There are 16 bus outputs accessed by 8 routing buttons and a SHIFT button.

Routing can be to multiple outputs and if odd and even outputs are selected panning can be used to place the signal within a stereo image.

With multiple buses available it is possible to achieve a variation on the multi-bus compression techniques made popular by mix engineers like Michael Brauer. (See www.mbrauer.com/articles).

The LF switch moves the routing from the SF path over to the LF path and can be useful for track bouncing. If PAN is down and routing is again selected for odd and even buses then the post fade post pan LF signal is sent to the bus outputs selected.

There are 8 auxiliary outputs. The Auxiliaries can be switched to the SF path.

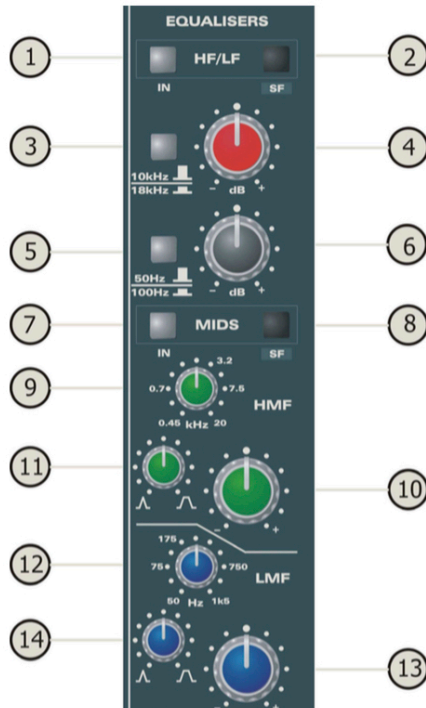
Cue A and B work in the same manner as the other auxiliaries but are intended mainly for use as sends to the FOLDBACK system.

Figure 4 - Routing and Auxiliaries

Console functions.



CHANNEL STRIP



- | | |
|---|--|
| 1 HF/LF Section. This places the HF/LF equaliser in circuit. | 8 SF places the MIDS equaliser in the SF signal path where it can be used to treat a signal before being recorded. |
| 2 SF places the HF/LF equaliser in the SF signal path where it can be used to treat a signal before it is recorded. | 9 This controls the centre FREQUENCY of the high mid equaliser. |
| 3 10kHz/18kHz allows the frequency of the HF equaliser to be selected. | 10 HIGH MID boost/cut control. |
| 4 HF boost/cut control. | 11 HIGH MID Q control. |
| 5 50Hz/100Hz allows the frequency of the LF equaliser to be selected. | 12 This controls the centre FREQUENCY of the low mid equaliser. |
| 6 LF boost/cut control. | 13 LOW MID boost/cut control. |
| 7 MIDS Section. This places the MIDS equaliser in circuit. | 14 LOW MID Q control. |

EQUALISER

Note the dark background indicating that the equaliser is normally associated with the LF signal path.

The equaliser is split into two sections - one for high and low frequencies (HF/LF) and the other for middle frequencies (MIDS). Both sections can be switched in and out independently and switched into the SF signal path independently.

The HF section has a boost/cut range of 15dB. The frequency can be switched - 10kHz with the switch up and 18kHz with the switch depressed.

The LF section has a boost/cut range of 15dB and a shelving characteristic. The frequency can be switched - 50Hz with the switch up and 100Hz with the switch depressed.

The high mid section (HMF) has three controls. The boost/cut range is 15dB and the frequency of operation can be varied from 450Hz to 20kHz. A Q control allows for a very sharp and narrow characteristic or for a more gentle characteristic covering a wider range of frequencies.

The low mid section (LMF) has three controls. The boost/cut range is 15dB, and the frequency of operation can be varied from 50Hz to 1.5kHz. A Q control allows for a very sharp and narrow characteristic covering a wider range of frequencies.

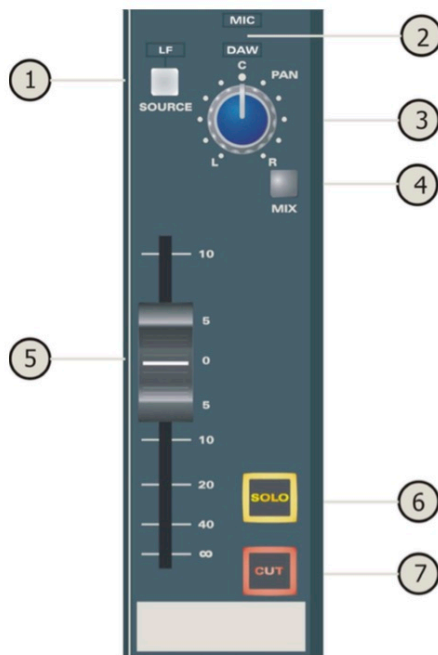
The actual Q range is between 3.8 (0.4 Octave) and 0.65 (2 octaves).

Figure 5 - Equaliser

Console functions.



CHANNEL STRIP



- 1 SOURCE selects the post fade LF signal as the input to the SF signal path, over-riding the MIC or DAW selection from the Flip switch. By altering a link on the circuit board this signal can be made pre fade. The LF legend will illuminate when the switch is pressed and the MIC/DAW indicator will blank.
- 2 MIC/DAW. These back lit indicators show whether the MIC/LINE or the DAW input is selected to the SF path. Only one will be illuminated and it can be changed by using the FLIP switch.
- 3 This is the PAN control for the SF signal enabling it to be panned across odd and even buses.
- 4 MIX routes the SF signal to the stereo mix bus. It is good practice to unrout any channels which are not needed. This will reduce mix amp noise.
- 5 This is the SHORT FADER which controls the level of the SF signal.
- 6 SOLO allows the SF signal to be heard on the monitors and viewed on the master meters. If Solo In Place is selected it will replace the console output.
- 7 CUT allows the SF signal path to be muted. This may help to reduce noise in a mix if a channel is not in use for a period of time.

SHORT FADER (SF)

There are 3 back illuminated indicators showing the selected input to the SF path. This can be changed between Mic/Line and DAW using the FLIP switch.

LF Source allows the source for the SF path to be taken from the LF path. This could be used during mixdown to send the LF signal through the SF path up to the routing matrix where the bus outputs can be used as additional effect sends. Normally this signal is derived after the long fader (POST LF) but it can be made PRE LF by changing an internal link on the circuit board.

The source switching occurs before the equaliser so it is possible to equalise the SF signal which has been taken from the LF path by switching either one or both equaliser sections into the SF path. (If this is done then the equaliser section is no longer available in the LF path).

The SF PAN control allows panning across the bus outputs when pan is selected on the routing section of the strip.

MIX allows the SF signal to be routed to the stereo mix bus and allows the SF path to be used as an additional input during mixdown.

The short fader is designed for use with 10dB of gain in hand allowing the signal to be boosted or reduced in level if required.

The SOLO switch allows the channel to be auditioned through the AFL/PFL or Solo in Place facilities.

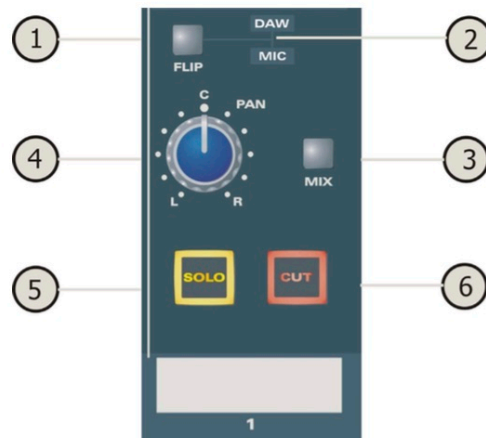
CUT allows the SF signal path to be muted.

Figure 6 - Short Fader

Console functions.



CHANNEL STRIP



- 1 FLIP swaps the inputs between the LF and SF paths.
- 2 These back lit indicators show whether the MIC/LINE or the DAW input is selected to the LF path. Only one will be illuminated and it can be changed by using the FLIP switch.
- 3 MIX allows the LF signal to be routed to the stereo mix bus. Normally this switch should be pressed but it is good practice to unroute any channels which are not needed. this will help to reduce mix amp noise.
- 4 This is the PAN control for the LF signal enabling it to be panned across the stereo bus
- 5 SOLO allows the LF signal to be heard on the monitors and viewed on the master meters or, if Solo in Place is selected, it will replace the console output.
- 6 CUT allows the LF signal path to be muted. This may help to reduce the noise in a mix when a channel is not in use for a period of time.

FLIP and PAN

The FLIP switch allows the MIC/ LINE input and the DAW input to be reversed. Normally the DAW input feeds the LF signal path - with FLIP pressed it will feed the SF signal path. The MIC/LINE input normally feeds the SF signal path and with FLIP pressed it will feed the LF signal path. Illuminated indicators in each section show which input is selected to the LF and SF paths.

The PAN control pans the LF signal across the stereo mix bus and the MIX switch assigns the LF signal to the stereo bus.

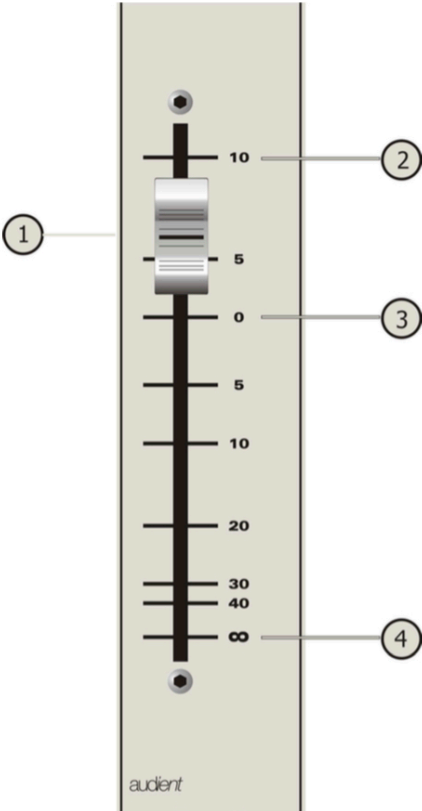
The SOLO switch allows the long fader signal to be auditioned through the AFL/PFL or Solo in Place facilities.

CUT allows the LF signal path to be muted.

Page 33 gives more detail regarding the long fader used to control the level of the LF signal path.

Figure 7 - Flip and Pan

CHANNEL STRIP



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| 1 This is the LONG FADER which controls the level of the LF signal. | 3 This is the 0dB mark. This is the normal operation position for the fader. |
| 2 This is the +10dB mark. The fader is fully open at this point and introducing 10dB of gain into the signal path. | 4 With the fader here the signal path is closed and no signal will pass. |

LONG FADER (LF)

Located close to the operator this fader operates on the LF signal path and is therefore mainly used for creating the monitor mix and the final stereo mix for the title.

The fader is expected to operate around the 0dB mark with 10dB of gain in hand allowing the signal to be increased or decreased in level.

When level setting start with the fader in this position then adjust the input sensitivity control for the correct level to optimise the gain structure.

Figure 8 - Long Fader