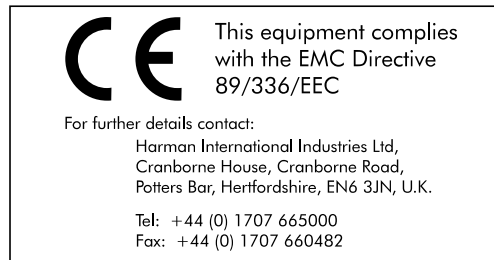

SOUNDCRAFT



USER GUIDE

Soundcraft



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Part No. ZM0088-01

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1. Introduction

System Overview

Warranty

The K₁ is a professional, compact, four-bus sound reinforcement console designed for a wide range of applications in installed and portable sound systems.

The console is available in a range of free-standing frame sizes or the smallest frame can be rack-mounted with the optional mounting brackets. The modular construction, with input modules in blocks of four, provides ease of servicing and configuration to suit individual applications. All frames include a versatile Master section, combining group and main output masters, monitoring, matrix outputs and two full stereo input channels.

All input modules include a 4-band EQ and High Pass Filter, 6 Auxiliary Sends and routing to 4 Sub-Groups, Stereo and Mono outputs.

Frame Sizes

The K₁ is available in 3 frame sizes:

- 8 inputs + Master
- 16 inputs + Master
- 24 inputs + Master
- 32 inputs + Master

The 8 input frame may be fitted with optional mounting brackets for installation in standard 19" racking.

Module Options

All frames include the Master section which comprises group and main output masters, monitoring, matrix outputs and two full stereo input channels.

Input modules may be added in blocks of four as follows:

- Mono Input Block with 4-band EQ (with sweep mid sections) and 6 Auxiliary Sends
- Stereo Input Block with 4-band EQ and 6 Auxiliary Sends

Metering

12-segment peak-reading LED bargraph meters display Mix/Solo and Group/Matrix output levels.

Power Supplies

The power supply which is supplied with the console will depend upon the number of channels which the console has. Always use the power supply which is supplied with the console. Consoles may require a larger power supply when optional Stereo modules are fitted - please check with your dealer for guidance.

1 **Soundcraft** means Soundcraft Electronics Ltd.

End User means the person who first puts the equipment into regular operation.

Dealer means the person other than Soundcraft (if any) from whom the End User purchased the Equipment, provided such a person is authorised for this purpose by Soundcraft or its accredited Distributor.

Equipment means the equipment supplied with this manual.

2 If within the period of twelve months from the date of delivery of the Equipment to the End User it shall prove defective by reason only of faulty materials and/or workmanship to such an extent that the effectiveness and/or usability thereof is materially affected the Equipment or the defective component should be returned to the Dealer or to Soundcraft and subject to the following conditions the Dealer or Soundcraft will repair or replace the defective components. Any components replaced will become the property of Soundcraft.

3 Any Equipment or component returned will be at the risk of the End User whilst in transit (both to and from the Dealer or Soundcraft) and postage must be prepaid.

4 This warranty shall only be available if:

a) the Equipment has been properly installed in accordance with instructions contained in Soundcraft's manual; and

b) the End User has notified Soundcraft or the Dealer within 14 days of the defect appearing; and

c) no persons other than authorised representatives of Soundcraft or the Dealer have effected any replacement of parts maintenance adjustments or repairs to the Equipment; and

d) the End User has used the Equipment only for such purposes as Soundcraft recommends, with only such operating supplies as meet Soundcraft's specifications and otherwise in all respects in accordance Soundcraft's recommendations.

5 Defects arising as a result of the following are not covered by this Warranty: faulty or negligent handling, chemical or electro-chemical or electrical influences, accidental damage, Acts of God, neglect, deficiency in electrical power, air-conditioning or humidity control.

6. The benefit of this Warranty may not be assigned by the End User.

7. End Users who are consumers should note their rights under this Warranty are in addition to and do not affect any other rights to which they may be entitled against the seller of the Equipment.

2. Installation

Dimensions

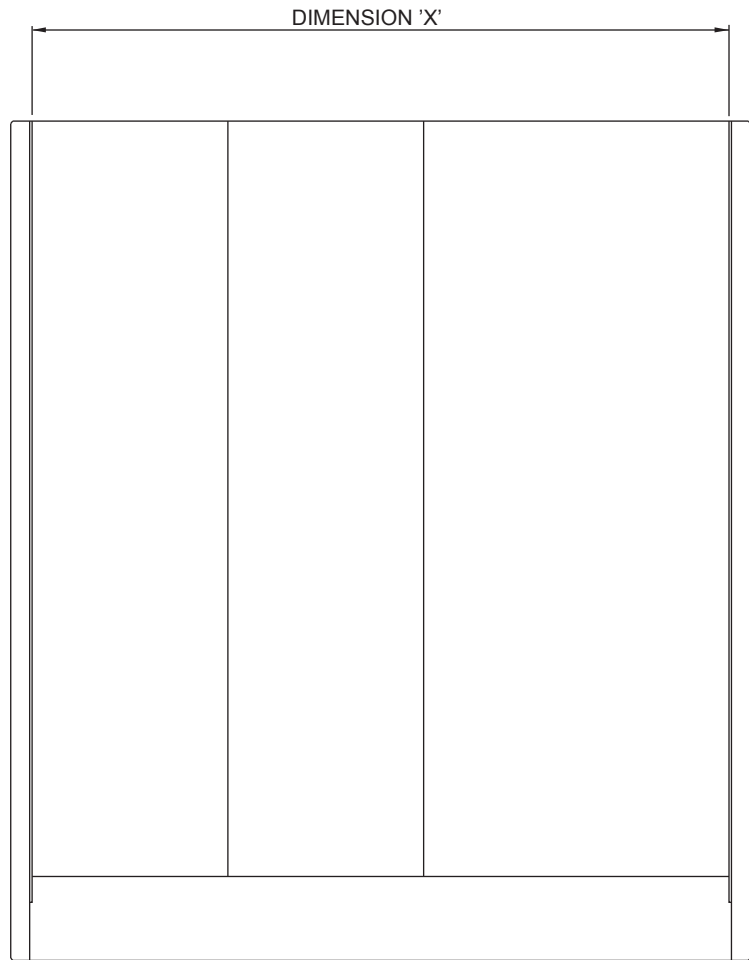
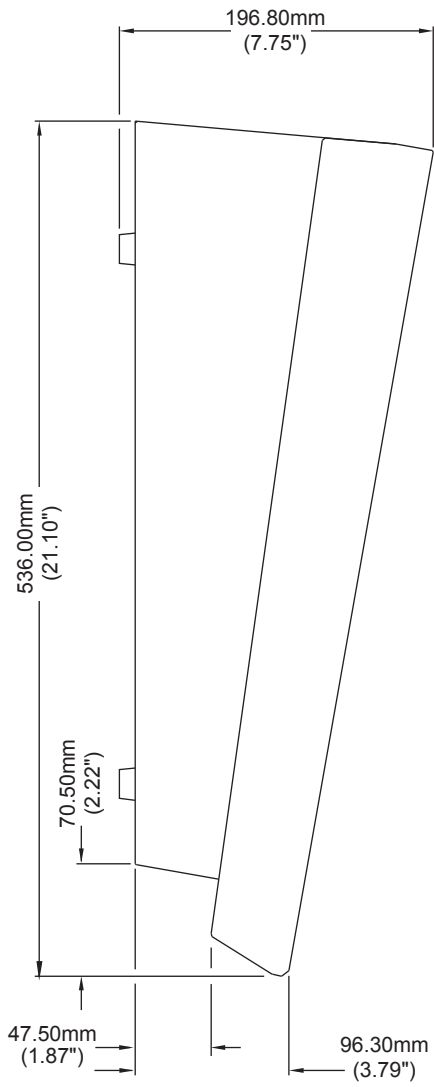
Precautions & Safety Instructions

Mains Installation

General Wiring Procedures

Connections

Dimensions



Console	Dimension 'X'
8 ch.	460.00mm (18.11")
16 ch.	678.53mm (26.71")
24 ch.	920.73mm (36.25")

General Precautions

Avoid storing or using the mixing console in conditions of excessive heat or cold, or in positions where it is likely to be subject to vibration, dust or moisture. Do not use any liquids to clean the fascia of the unit: a soft dry brush is ideal. Use only water or ethyl alcohol to clean the trim and scribble strips. Other solvents may cause damage to paint or plastic parts.

Avoid using the console close to strong sources of electromagnetic radiation (e.g. video monitors, highpower electric cabling): this may cause degradation of the audio quality due to induced voltages in connecting leads and chassis. For the same reason, always site the power supply away from the unit.

Caution! In all cases, refer servicing to qualified personnel.

Handling and Transport

The console is supplied in a strong carton. If it is necessary to move it any distance after installation it is recommended that this packing is used to protect it. Be sure to disconnect all cabling before moving. If the console is to be regularly moved we recommend that it is installed in a foamlined flightcase. At all times avoid applying excessive force to any knobs, switches or connectors.

Power Supplies & cables

Always make sure that the power supply unit (PSU) has been set to the same voltage as the mains supply

Always use the power supply and cable supplied with the mixer: the use of alternative supplies may cause damage and voids the warranty; the extension of power cables may result in malfunction of the mixing console.

Warning! Always switch the power supply off before connecting or disconnecting the mixer power cable, removing or installing modules, and servicing. In the event of an electrical storm, or large mains voltage fluctuations, immediately switch off the PSU and unplug from the mains.

Always ensure that you use the correct PSU for your mixer.

Signal Levels

It is important to supply the correct input levels to the console, otherwise signal to noise ratio or distortion performance may be degraded; and in extreme cases, damage to the internal circuitry may result. Likewise, on all balanced inputs avoid sources with large commonmode DC, AC or RF voltages, as these will reduce the available signal range on the inputs. Note that 0dBu = 0.775V RMS.

Refer to the Specifications section for details of input and output levels.

Before switching on the K₁ console, check that the mains voltage selector on the power supply unit is set to the correct mains voltage for your area and that the fuse is of the correct rating, this is clearly marked on the power supply.

Warning! Do not replace the fuse with any other type, as this could become a safety hazard and will void the warranty.

To take full advantage of the excellent signal to noise ratio and low distortion of Soundcraft consoles care must be taken to ensure that incorrect installation and wiring does not degrade the performance of the desk. Hum, buzz, instability and Radio Frequency interference can usually be traced to earth loops and inferior earthing systems. In some areas, especially heavily industrial areas, the incoming mains earth will not be adequate and a separate technical earth for all the audio equipment must be supplied. However, check with your local electricity supply company to ensure that safety regulations are not infringed or negated.

The successful, hum free, installation of a system requires forethought, and the establishment of a set of ground rules, which must be consistently adhered to at all stages of installation.

Initial Wiring Considerations

- For optimum performance, it is essential for the earthing system to be clean and noise free, as all signals are referenced to this earth. A central point should be decided on for the main earth point system, and all earths should be 'star fed' from this point. It is common electrical practice to 'daisy chain' the earths to all electrical outlets but this method is unsuitable for audio installations. The preferred method is to run an individual earth wire from each outlet, back to the system star point to provide a safety earth screen reference for each piece of equipment.

A separate earth wire should also be run from each equipment rack and area, to the star point. This may or may not be used depending on circumstances, but it is easier to install in the first place, than later when problems arise.

The location of the star point should be a convenient, easily accessible place, preferably at the rear of the console or in the main equipment rack.

- Install separate 'clean' and 'dirty' mains outlets, wired individually back to the incoming mains distribution box. Use the 'clean' supply for all audio equipment and the 'dirty' supply for all lighting, vending machines etc. Never mix the two systems.
- If necessary, to provide sufficient isolation from mains borne interference, install an isolating transformer. This should be provided with a Faraday Shield which must be connected with earth.
- Never locate the incoming mains distribution box near audio equipment, especially tape recorders, which are very sensitive to electro-magnetic fields.
- Ensure that all equipment racks are connected to earth, via a separate wire back to the star point.
- Equipment which has unbalanced inputs and outputs may need to be isolated from the rack to prevent earth loops.

Audio Wiring

Having provided all equipment with power and earthing connections, consideration must be given to the method of providing audio interconnection and adequate screening of those interconnections. This must be done in a logical sequence to avoid problems and assist in the localisation of problem equipment.

- Connect the Monitor system to the console and check for any hum, buzz, or RFI. Only when you are satisfied with the quietness of the console and the monitor system should you proceed with the next step.
- Connect stereo tape recorders, echo and foldback sends one at a time, checking and isolating any connection which degrades performance.
- Connect all other peripheral devices.
- Connect all microphone lines.

By following this sequence much time and future trouble will be saved, and the result will be a quiet, stable system.

Shielding

Audio equipment is supplied with a variety of input and output configurations, which must be taken into consideration when deciding where the screen connections should be made. There are three sources of unwanted signal being impressed on the screen, which are as follows:

- Extraneous electrostatic or electromagnetic fields.
- Noise and interference on the earth line.
- Capacitive coupling between the screen and signal wires.

To minimise the adverse affects of the unwanted coupling to the signal wires, it is important that the screen is connected at one end only, i.e. the screen must not carry any signal current. Any signal on the wires within the screen will be capacitively coupled to the screen. This current will ultimately be returned to the source of the signal, either directly, if the screen is connected at the signal source end, or indirectly via the earthing system, if the signal is connected at the signal destination end. The indirect connection will cause an increase in high frequency cross-talk, and should be avoided wherever possible.

Therefore, in general, always connect the shield only at the signal source end. In high RF areas, the screen can also be connected to earth via a 0.01 μ F capacitor. This will present a short circuit at RF frequencies, thus lowering the effective shield impedance to ground. However, at low audio frequencies the reactance of the capacitor will be sufficiently high not to cause an earth loop problem.

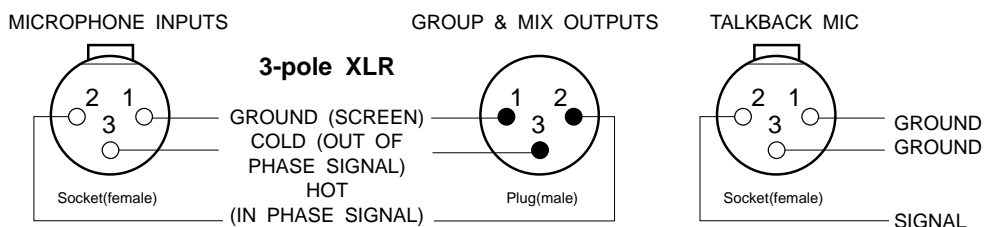
Points to Remember

- In all cases, use good quality twin screened audio cable. Check for instability at the output.
- Always connect both conductors at both ends, and ensure that the screen is only connected at one end.
- Do not disconnect the mains earth from each piece of equipment. This is needed to provide both safety and screen returns to the system star point.
- Equipment which has balanced inputs and outputs may need to be electrically isolated from the equipment rack and/or other equipment, to avoid earth loops.

It is important to remember that all equipment which is connected to the mains is a potential source of hum and interference and may radiate both electrostatic or electromagnetic radiation. In addition, the mains will also act as a carrier for many forms of RF interference generated by electric motors, air-conditioning units, thyristor light dimmers etc. Unless the earth system is clean, all attempts to improve hum noise levels will be futile. In extreme cases there will be no alternative but to provide a completely separate and independent 'technical earth' to replace the incoming 'noisy earth'. However, always consult your local electricity supply authority to ensure that safety regulations are not being infringed.

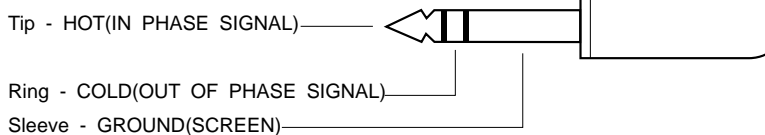
Wiring conventions

The K₃ uses two different types of audio connector: 3-pin XLR and 1/4" 3-pole jacks. This section describes how to connect external equipment to the console. Correctly-made cables of the proper type will ensure peak performance from your mixer.



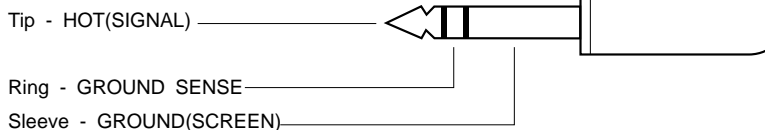
1/4" Stereo Jack Plug used as balanced Input/Output:

Hi-Z Input, Stereo Inputs, 2-Track Inputs, Matrix, Mono Output



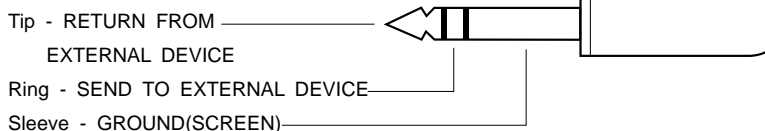
1/4" Stereo Jack Plug used as a ground compensated output:

Monitor Outputs, Aux Outputs, PFL Output



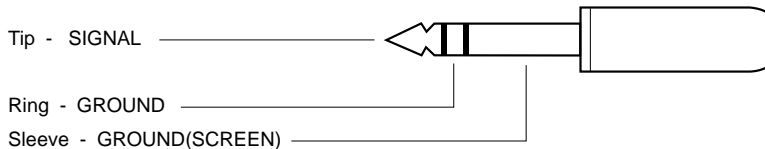
1/4" Stereo Jack Plug used as an unbalanced Insert:

Mono, Mix and Group Inserts



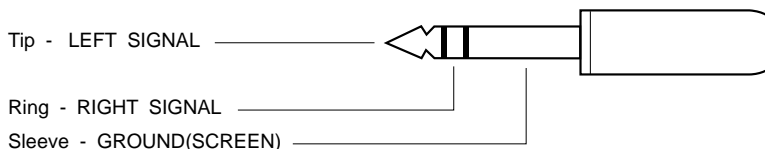
1/4" Stereo Jack Plug used as an unbalanced Output:

Direct Outputs



1/4" Stereo Jack Plug used as a Stereo Output:

Headphones



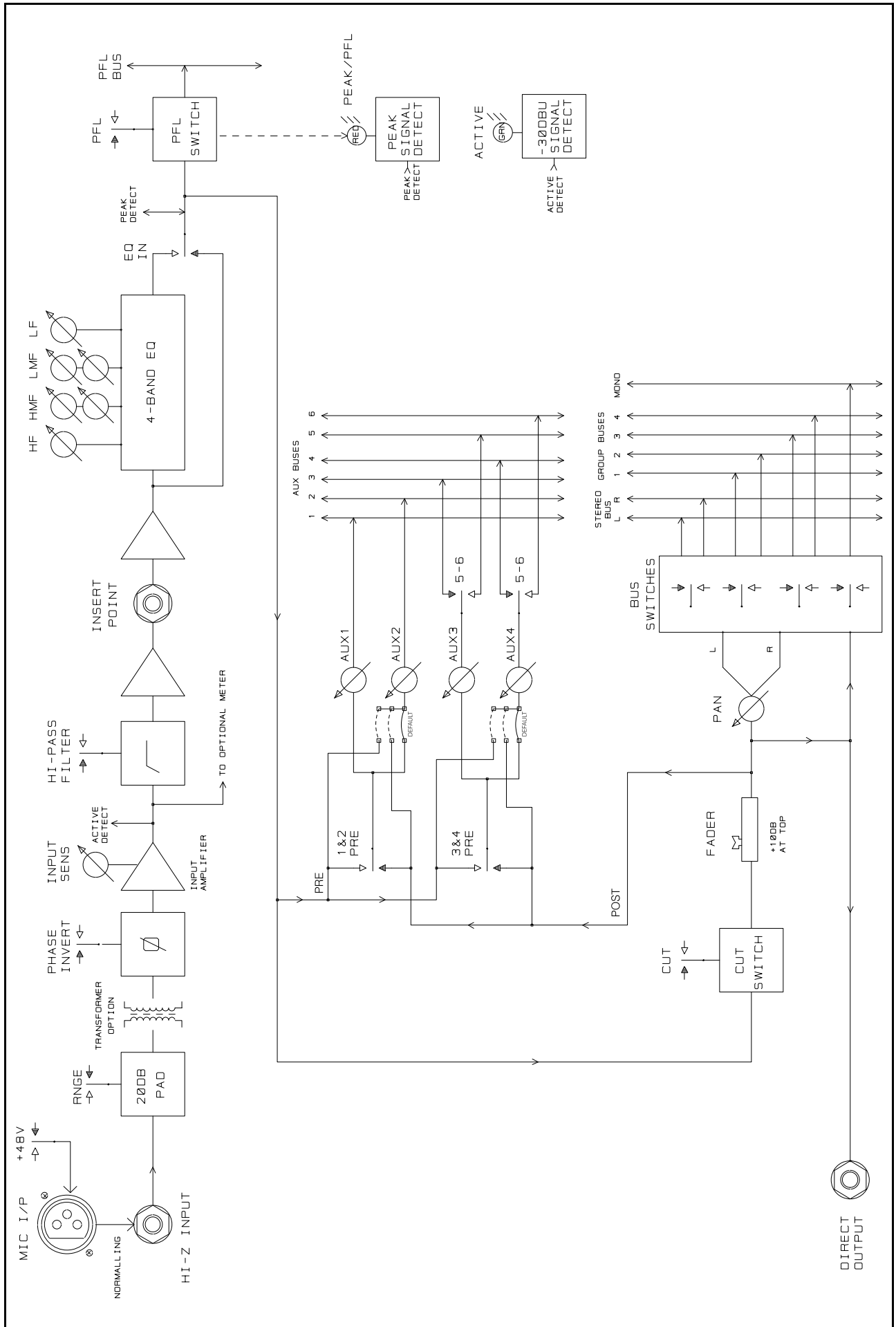
Block Diagrams

Mono Input

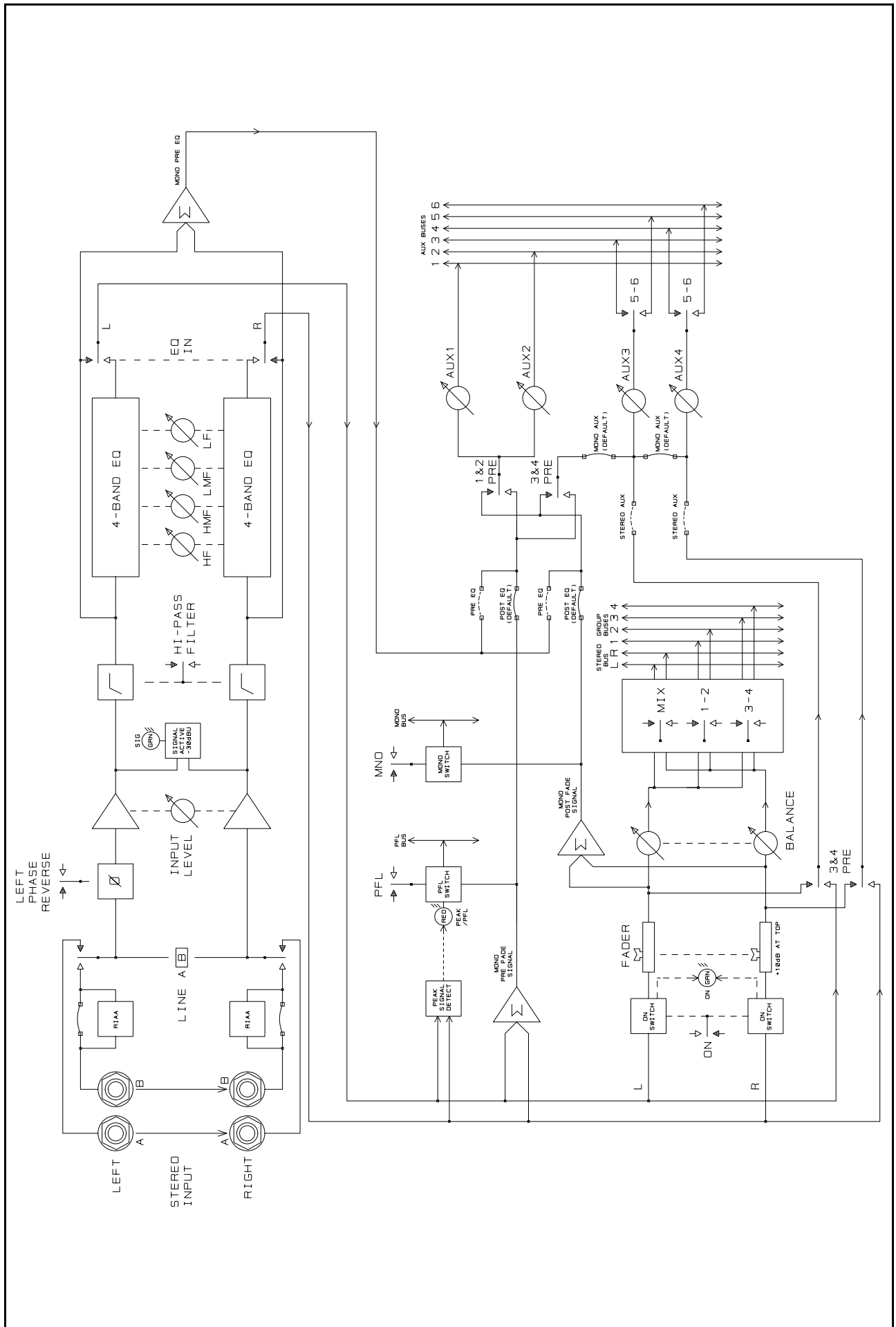
Stereo Input

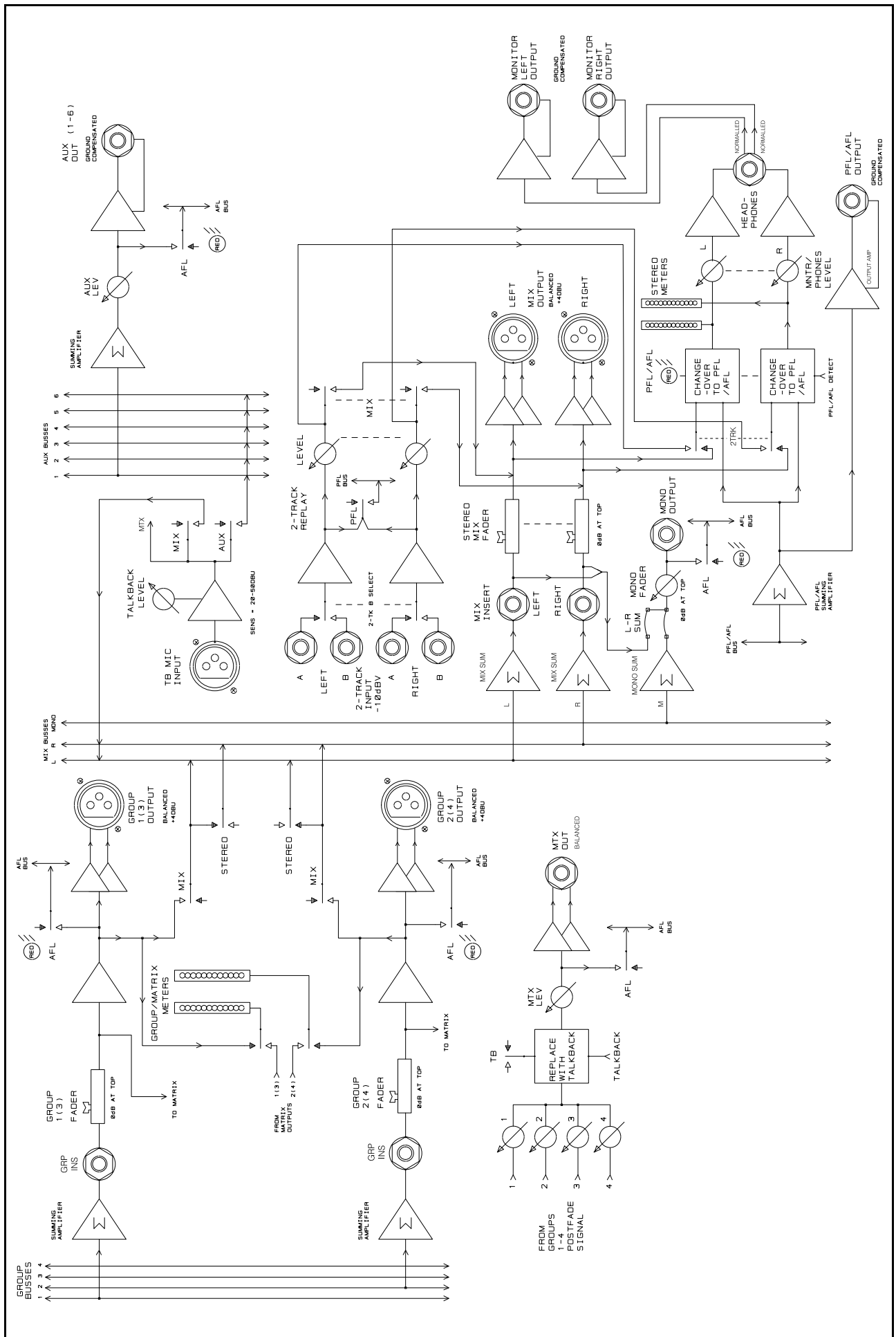
Master Section

Mono Input Module



Stereo Input Module





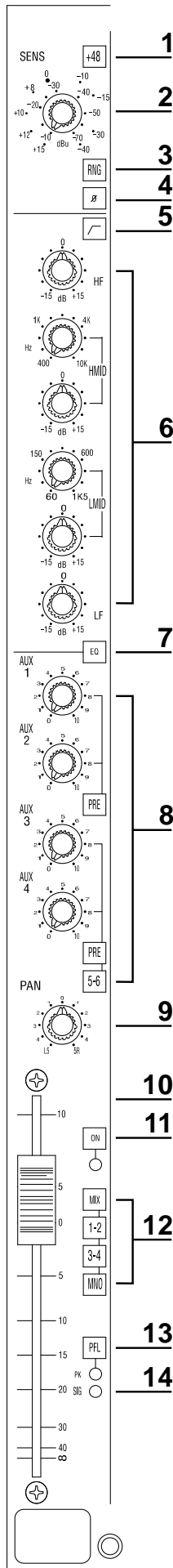
4. Functional Descriptions

Mono Input Module

Stereo Input Module

Matrix/Master Section

Mono Input Channel



The mono input is provided with XLR and jack connectors, either of which may be used for any level of input signal. Normally the XLR signal is used, but inserting a jack automatically disconnects the XLR socket, and applies the jack signal to the input.

The channel is provided with an Insert Point using an unbalanced send and return, at a nominal level of -2dBu. The signal is accessible via a single 1/4" jack on the rear connector panel. The insert point is permanently pre-EQ.

1 The **48V** switch applies 48V phantom power to the input XLR. Note that 48V is never applied to the jack socket.

2 The **SENS** (Sensitivity) control adjusts the sensitivity of both the XLR and jack inputs and in combination with the **RNGE** switch gives two sensitivity ranges: -15dBu to -70dBu and +10dBu to -40dBu.

3 The **RNGE** (Range) switch lowers the sensitivity of the input when pressed, allowing line level signals to be used.

4 The **Ø** (PHASE) switch reverses the phase of the selected input when pressed. The switch should normally be released.

5 This switch inserts a second order **HI-PASS FILTER** into the channel path. The frequency is fixed at 100 Hz.

Equaliser

6 The **EQ** section has four bands. The HF and LF sections have a shelving response at a fixed frequency. The Two MID sections have a peaking response at a variable frequency.

- The HF control gives 15dB of cut or boost at 12kHz.
- The LF control gives 15dB of cut or boost at 60Hz.
- The Hi-Mid control gives 15dB of cut or boost at 400-10kHz, selected by the Hi-Mid frequency control.
- The Low-Mid control gives 15dB of cut or boost at 60Hz-1.5kHz, selected by the Low-Mid frequency control.

7 The EQ section is switched in by the **EQ** switch. Toggling this switch provides a simple method of hearing the effect of the equaliser settings.

Auxiliary Sends

8 Signal is sent to the Aux 1-6 busses via four **LEVEL** controls. These have unity gain when fully clockwise, and are switched pre-or post-fader in pairs by the **PRE** buttons.

The **5-6** switch switches the signal from the second pair of level controls away from busses 3 & 4 and onto busses 5 & 6.

Internal links are fitted which enable send pots 2 and 4 to be disconnected from their respective PRE switches, and linked independently to the pre- or post-fade signals.

Routing

9 The **PAN** control determines the position of the signal within the stereo image. In the centre position there is a 4.5dB level drop. Pan left feeds the signal to odd numbered busses and Mix Left, pan right feeds to even numbered busses and Mix Right.

10 The long-travel **FADER** has 10dB of gain and is the main level control for the channel, enabling rapid and accurate control of the channel output level. When mixing, you will get optimum headroom and signal-to-noise ratios by keeping the fader at about the unity gain (0) mark. Avoid running the input sensitivity too high, and the fader resultingly low, since this gives very little headroom. Similarly, running the input sensitivity very low, and the fader fully up (10dB of gain) will increase noise levels, and does not allow any increase in gain on the fader should the source signal drop unexpectedly.

11 The **ON** switch enables the post EQ, post-Insert channel signal path: when released, all post-fade Auxiliary Sends and all routing outputs are muted. We recommend that you switch all unused channels OFF to prevent unwanted noise being added to any parts of the mix.

12 The signal is sent to the stereo mix bus, mono bus and 4 group busses using the **MIX, MNO, 1-2 & 3-4** switches respectively, subject to the position of the PAN control (see above).

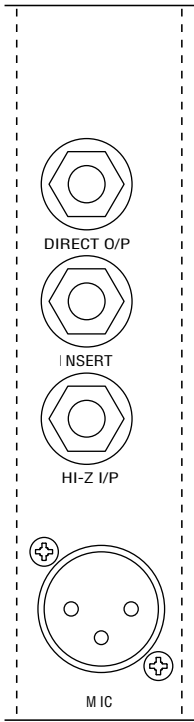
The mono bus is fed directly from the post-fader signal.

13 The PFL switch feeds the pre-fade signal into the monitor/phones system where it replaces the selected monitor source.

The red **LED** illuminates when the PFL switch is pressed, and also serves as a **PEAK (PK)** indicator, monitoring the signal at the output of the Equaliser and illuminates at 6dB before clipping.

14 The green **SIG LED** monitors the signal at the input amp and illuminates when the signal exceeds -30dBu.

The post-fade signal is sent to the unbalanced **DIRECT OUTPUT** jack on the rear panel.



Rear Connectors

INPUT (3 pin female XLR)

Pin 1	Ground
Pin 2	Signal Hot
Pin 3	Signal Cold

JACK INPUT (1/4" TSR Jack)

Tip	Signal Hot
Ring	Signal Cold
Sleeve	Ground

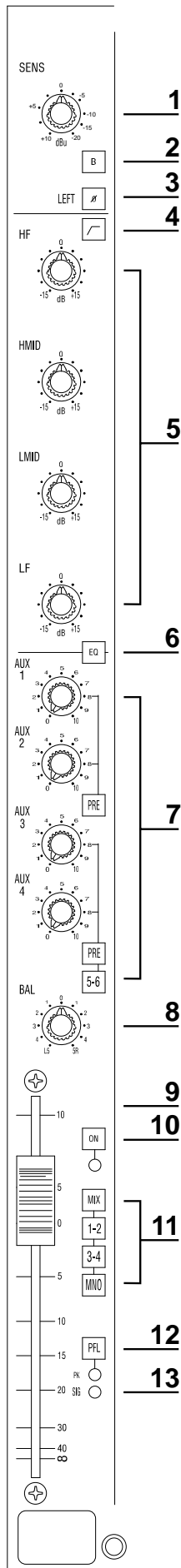
INSERT SEND/RETURN, (1/4" TSR Jack)

Tip	Return signal
Ring	Send signal
Sleeve	Ground

DIRECT OUTPUT (1/4" TSR Jack)

Tip	Signal Hot
Ring	Ground
Sleeve	Ground

Stereo Input Channel



1 The **SENS** (Sensitivity) control adjusts the sensitivity of A or B inputs from +14 to -16dBu.

2 Pressing **B** switches the input source from line A to line B, both of which are electronically balanced, from 1/4" Jack inputs on the rear panel.

The left and right jacks of both A and B inputs are normalised together via the switch contacts of the right jack so that a mono signal, plugged into the left jack only, is fed equally to left and right.

Input B may be linked for an internal RIAA filter.

3 Pressing **LEFT** (Ø) **PHASE** inverts the phase of the left channel on the selected input.

4 This switch inserts a second order **HI-PASS FILTER** into the channel path. The frequency is fixed at 100 Hz.

Equaliser

5 The **EQ** section has four bands. The HF and LF sections have a shelving response at a fixed frequency. The Two MID sections have a peak/dip response at fixed frequencies.

- The HF control gives 15dB of cut or boost at 12kHz.
- The LF control gives 15dB of cut or boost at 60Hz.
- The Hi-Mid control gives 15dB of cut or boost at 5kHz.
- The Lo-Mid control gives 15dB of cut or boost at 250Hz.

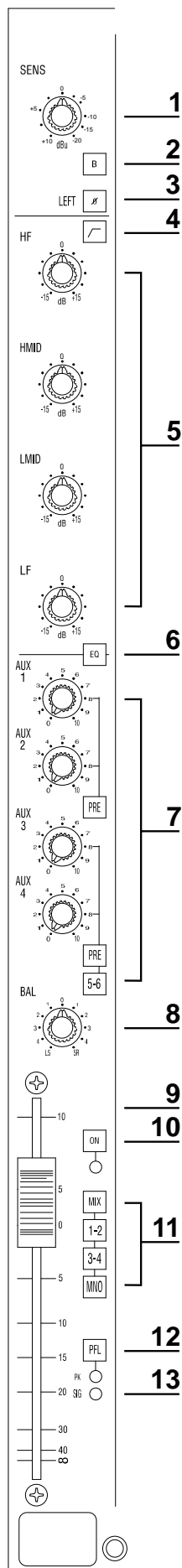
6 The EQ section is switched in by the **EQ** switch. Toggling this switch provides a simple method of hearing the effect of the equaliser settings.

Auxiliary Sends

7 Signal is sent to the Aux 1-6 busses via four **LEVEL** controls. These have unity gain when fully clockwise, and are switched pre-or post-fader in pairs by the **PRE** buttons.

The **5-6** switch switches the signal from the second pair of level controls away from busses 3 & 4 and onto busses 5 & 6.

The pre or post-fader source for Aux 1 & 2 is a mono sum of the left and right channel signals. The Pre or post-fader source for the for Aux 3 & 4 (5 & 6) can be either stereo (left feeds 3 or 5, right feeds 4 or 6) or a mono sum. This is selected by internal jumpers.



Routing

8 The **BAL** (Balance) control determines the relative levels of the L and R signals. In the centre position its gain is unity. Turning it fully clockwise increases the right signal by 4.5dB, and reduces the left signal to zero. Full anticlockwise rotation has the opposite effect. Balance left biases the signal to odd numbered busses, balance right to even busses.

9 The long-travel **FADER** has 10dB of gain and is the main level control for the channel, enabling rapid and accurate control of the channel output level. When mixing, you will get optimum headroom and signal-to-noise ratios by keeping the fader at about the unity gain (0) mark. Avoid running the input sensitivity too high, and the fader resultingly low, since this gives very little headroom. Similarly, running the input sensitivity very low, and the fader fully up (10dB of gain) will increase noise levels, and does not allow any increase in gain on the fader should the source signal drop unexpectedly.

10 The **ON** switch enables the post EQ, post-Insert channel signal path: when released, all post-fade Auxiliary Sends and all routing outputs are muted. We recommend that you switch all unused channels OFF to prevent unwanted noise being added to any parts of the mix.

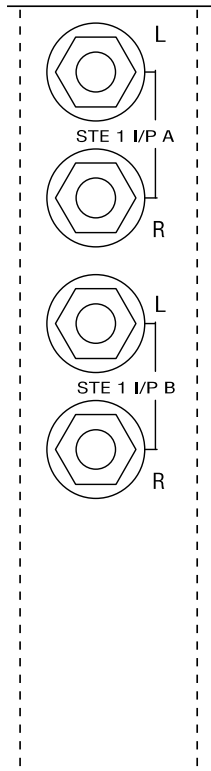
11 The signal is sent to the stereo mix bus, mono bus and 4 group busses using the **MIX, MNO, 1-2 & 3-4** switches respectively, subject to the position of the BAL control (see above).

The mono bus is fed directly from the post-fader signal.

12 The **PFL** switch feeds a mono sum of the stereo source pre-fade signal into the monitor/phones system where it replaces the selected monitor source.

The red **LED** illuminates when the PFL switch is pressed, and also serves as a **PEAK (PK)** indicator, monitoring the left and right signals post-EQ, pre-fader and illuminates when either channel reaches 4dB before clipping.

13 The green **SIG LED** monitors the left and right signals at the input amp and illuminates when the signal at either point exceeds -30dBu.

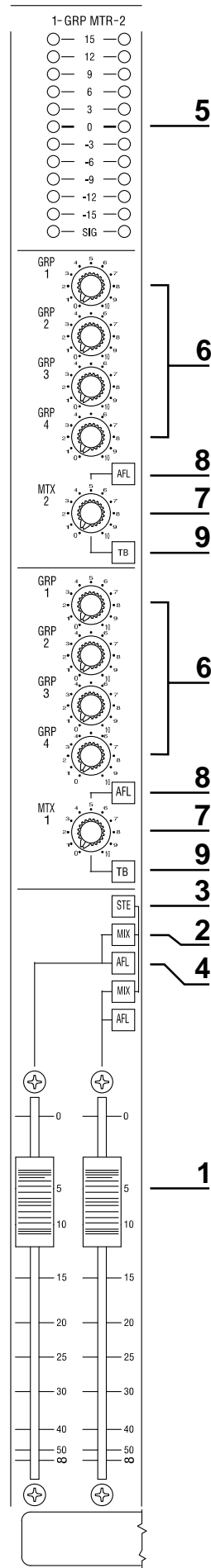


Rear Connectors

LINE A and B, LEFT and RIGHT (1/4" TSR Jacks)

Tip	Signal Hot
Ring	Signal Cold
Sleeve	Ground

Group/Matrix Section



Group Output

1 The Group **FADER** controls the level of the Group signal fed to the Insert Send, with unity gain at the top of the fader.

The insert point is pre-fade, and uses an unbalanced send and return at a nominal level of -2dBu. The insert send and return are on a single 1/4" jack on the rear connector panel.

2 The **MIX** switch routes the post-fade group signal to the left and right stereo mix busses, depending on the setting of the STE switch (*see below*).

3 If **STE** (Stereo) is pressed, the odd-numbered group is sent to MIX Left, the even-numbered to MIX Right.

If STE is not pressed, both odd and even groups are sent in mono to MIX Left and Right.

4 The **AFL** switch feeds the post fade group signal to the monitor/phones section where it replaces the selected monitor source.

5 The Group output levels are metered (post fader) by four peak-reading 12-segment LED **BARGRAPHS** at the top of the module; the meters are calibrated for 0 at +4dBu output. The meter response is peak-reading.

The meters can be switched to read the matrix output signal by pressing the GRP METERS TO MATRIX switch on the Master section.

The group output signal is electronically balanced and is available on a male 3-pin XLR connector on the rear panel.

Matrix section

The matrix section provides 4 matrix outputs, each of which is a mix of the four post-fade Group signals. Each output contains receive level controls, output fader, talkback and AFL buttons.

6 The receive **LEVEL** controls 1-4 control the amount of each post-fade Group signal fed to the matrix output fader.

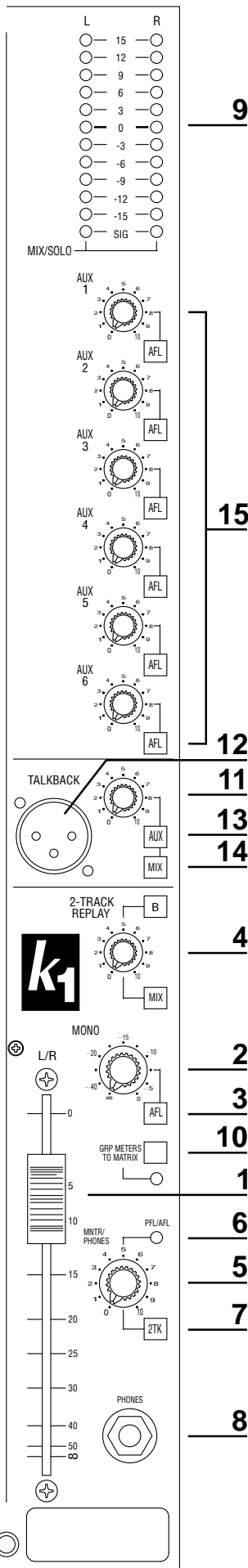
7 The Matrix output rotary **FADER** controls the output level fed to the matrix output (balanced 1/4" jack on rear panel).

8 The **AFL** button feeds the post-fade Matrix output signal to the phones/monitor outputs, replacing the selected source.

9 Pressing the **TB** button feeds talkback signal from the talkback mic amp on the Master section to the Matrix output, after the output fader. The signal replaces the Matrix output signal.

The LED **METERS** above the group/matrix section can be switched as a block to read the four post fade matrix output signals. This is done by means of electronic switching activated by pressing the GRP METERS TO MATRIX switch on the master section.

Master Section



The master section contains the controls for the main stereo and mono outputs, auxiliary outputs, control room/phones outputs, two-track inputs and talkback input.

Main Stereo Outputs

1 The Stereo Mix Left and Right signals are controlled by the **L/R FADER**. Unity gain is at the top of the fader. The left and right outputs are electronically balanced and appear on male XLR connectors on the rear panel.

Mix Left and Right pre-fade Insert Points are provided, using an unbalanced send and return on single 1/4" jack sockets on the rear panel.

Mono Output

The MONO output is electronically balanced and appears on a 1/4" jack on the rear panel.

2 The Mono Master **FADER** controls the output level with unity gain fully clockwise.

The source of the mono fader is normally the mono bus itself, but internal jumpers allow this to be changed to be a derived mono sum of the pre-fade (post insert) Mix Left and Right signals.

3 The **AFL** switch routes the post-fade mono signal to the monitor/phones outputs, replacing the selected source.

2-Track Returns

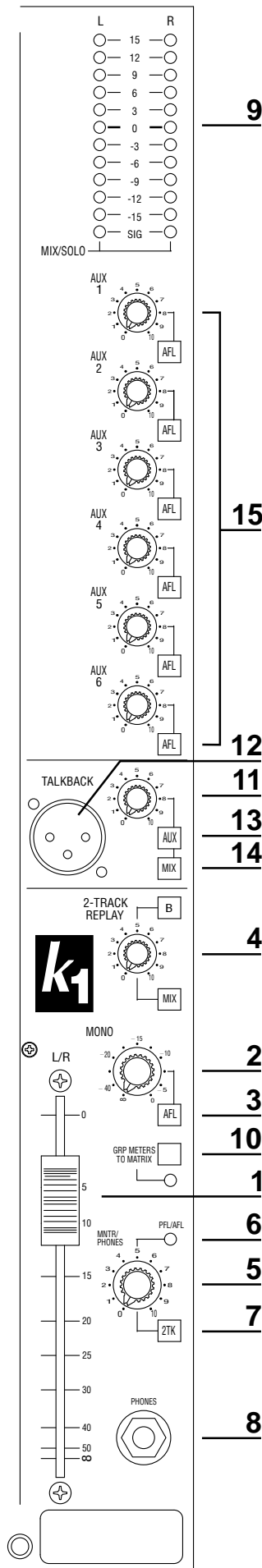
4 There are two 2-track return inputs, electronically balanced, from 1/4" jacks on the rear panel. The **2-TRACK REPLAY** control adjusts the sensitivity of both inputs and is nominally -10dBV for unity gain with the control fully clockwise.

Pressing the **B** button selects the 2 TRK B inputs. The **MIX** button routes the signal to the stereo mix outputs.

The selected 2-track input can be monitored on the monitor/phones outputs by pressing the 2TRK button on the monitor output section.

Monitor and headphones outputs

5 The Monitor Outputs and Headphones output share a common signal source and are controlled by the **MNTR/PHONES LEVEL** control. The Monitor outputs are via Left and Right 1/4" jacks on the rear panel with ground compensated outputs. The phones output socket is a stereo 1/4" jack on the front panel. The Monitor outputs are automatically cut off when a jack is inserted in the PHONES socket.



6 A solo system of pre-fade (inputs) and post-fade (outputs) feeds the monitor and phones outputs. Normally, all active AFL & PFL signals are summed together and fed to the monitor and phones outputs. The **PFL/AFL** LED illuminates to show that a PFL/AFL is active. This overrides the Stereo Mix or 2-Track signal which is normally fed to the monitor/phones output (*see below*).

7 The signal source for the Monitor and Phones outputs is selected using the **2TRK** button. If this is not pressed, the post-fade stereo Mix signal is fed to the monitor outputs. If 2TRK is pressed, the post-fade signal from the 2-Track return section is fed to the monitor outputs. Any PFL/AFL operation will override the Mix or 2-Track signal.

8 A front panel jack is provided for the connection of stereo headphones.

Metering

9 Two 12-segment peak-reading LED **BARGRAPH METERS** follow the Monitor/Phones selection to display the post-fade Stereo Mix, 2-Track return or AFL/PFL signals.

10 The **GRP METERS TO MATRIX** switch selects the post-fade Matrix output signals as the source for the Group meters, instead of the normal Group signal.

Talkback

The talkback system provides communication to the Group, Matrix and Aux outputs.

11 The **TALKBACK** control adjusts the level of the Talkback Mic input. The sensitivity of the mic input is variable between 0dBu and -50dBu.

12 The 3-pin XLR connector provides an unbalanced **TALKBACK INPUT** for a local microphone or gooseneck mic.

13 The momentary **AUX** button routes the talkback microphone signal to Auxiliary busses 1-6 when pressed.

14 The momentary **MIX** button routes the talkback mic signal to the Mix L and R busses when pressed.

In addition, the talkback mic signal is permanently fed to the TB switches on each matrix output, where it can be locally injected as required.

Auxiliary outputs

15 The **AUXILIARY SEND MASTER LEVEL** controls set the output level of the Auxiliary Send mixes. 10dB of gain is provided with the controls fully clockwise, with a nominal unity gain at position 7.

The **AFL** button switches the post fader signal to the monitor/phones output.

The Auxiliary outputs are ground compensated at +4dBu on 1/4" Jacks on the rear panel.

PFL Output

A ground compensated output is provided for the PFL/AFL signal. This is via a 1/4" jack socket on the rear panel.

Rear Connectors

MIX/MONO/GRP OUTPUTS (3-pin male XLR)

Pin 1	Ground
Pin 2	Signal Hot
Pin 3	Signal Cold

MIX/GRP INSERT SEND/RETURN (1/4" TSR Jack)

Tip	Return signal
Ring	Send signal
Sleeve	Ground

AUXILIARY, MONITOR, PFL OUTPUTS (1/4" TSR Jack)

Tip	Signal Hot
Ring	Ground Sense
Sleeve	Ground

PHONES OUTPUT (1/4" TSR Jack) (Front-panel mounted)

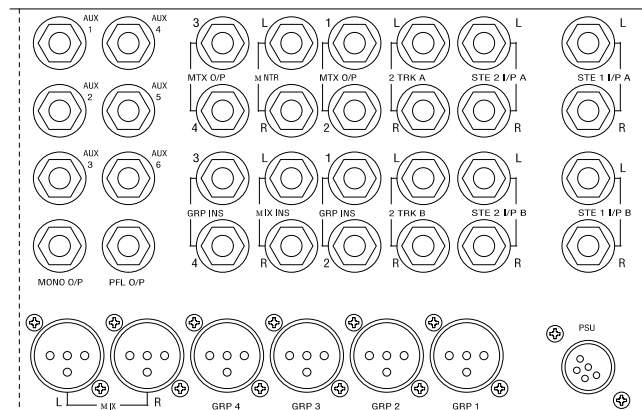
Tip	Left Signal
Ring	Right Signal
Sleeve	Ground

TALKBACK MIC IN (3 pin female XLR)

Pin 1	Ground
Pin 2	Signal
Pin 3	Ground

2-TRACK RETURNS A,B (1/4" TSR Jack)

Tip	Signal Hot
Ring	Signal Cold
Sleeve	Ground



Specifications

Frequency Response

Any input to any output 20Hz - 20kHz, +0/-0.5dB

Total Harmonic Distortion

(All measurements at +20dBu)

Line In to Group or Mix out Less than 0.01% @ 1kHz
Less than 0.025% @ 10kHz

Noise

(22Hz-22kHz bandwidth, unweighted)

Mic Input Equivalent Input Noise Less than -127.5dBu
(200ohm source)

Input and Output Impedances

Mic Inputs 2k Ω balanced
Hi-Z and Stereo Inputs Greater than 10k Ω balanced
Aux Outputs 75 Ω ground compensated
Group, Mix and Matrix Outputs 75 Ω balanced

Input and Output Levels

Mic Input Sensitivity (XLR) -15dBu to -70dBu
Line Input Sensitivity (0.25" jack) +10dBu to -40dBu
Insert Send/Return -2dBu nominal
Aux Outputs +4dBu nominal
Group, Mix and Matrix Outputs +4dBu for 0VU