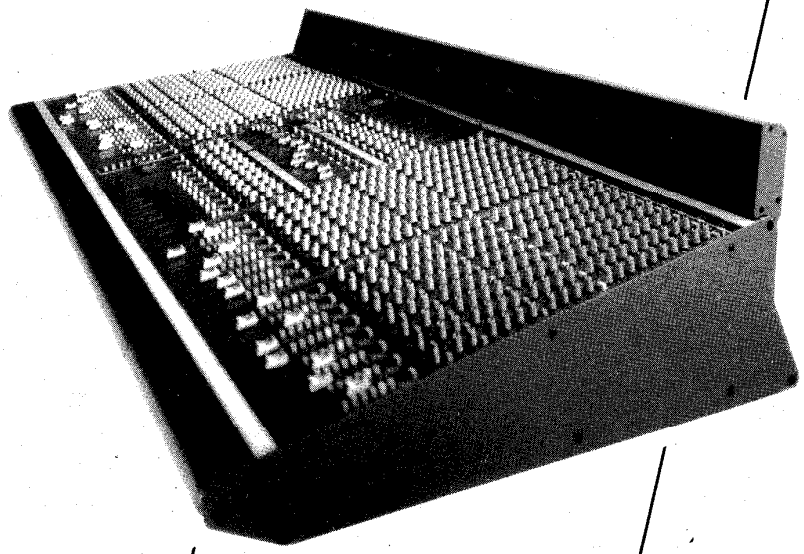
GL4

AUDIO MIXING CONSOLE

ALLEN & HEATH



USER GUIDE

PUBLICATION **AP2108**

LIMITED ONE YEAR WARRANTY

This product has been manufactured in the UK by ALLEN & HEATH LTD and is warranted to be free from defects in materials or workmanship for a period of one year from the date of purchase by the original owner.

To ensure the high level of performance and reliability for which this equipment has been designed and manufactured please read the User Guide before use.

In the event of a failure notify and return the defective unit to ALLEN & HEATH or its authorised agent as soon as possible for repair under warranty subject to the following conditions:

CONDITIONS OF WARRANTY:

1. The equipment has been installed and operated in accordance with the instructions in the User Guide.
2. The equipment has not been subject to misuse either intended or accidental, neglect, or alteration other than as described in the User Guide or Service Manual, or approved by ALLEN & HEATH.
3. Any necessary adjustment, alteration, or repair has been made by ALLEN & HEATH or its authorised agent.
4. The defective unit is to be returned carriage prepaid to ALLEN & HEATH or its authorised agent with proof of purchase.,
5. Units to be returned should be packed to avoid transit damage.

These terms of warranty apply to UK sales. In other territories the terms may vary according to legal requirements.

ALLEN & HEATH AGENT:

U.K. FACTORY:

ALLEN & HEATH Ltd.

Kernick Industrial Estate,

Penryn.

Cornwall. TR10 9LU.

A HARMAN INTERNATIONAL COMPANY.

INTRODUCTION

The *GL4* continues ALLEN & HEATH's commitment to provide high quality audio equipment engineered to meet the exacting requirements of today's audio business. It brings you the latest in high performance technology and offers the reassurance of over two decades of manufacture and customer support.

This user guide presents a quick reference to the function, application and installation of the *GL4*. For further information on the basic principles of audio system installation and engineering please refer to one of the specialist publications available from bookshops and audio equipment dealers.

Whilst we believe the information in this guide to be reliable we do not assume responsibility for inaccuracies. We also reserve the right to make changes in the interest of further product development.

SERVICE AND TECHNICAL SUPPORT

Under normal conditions the *GL4* does not require user maintenance or calibration. Internal links and preset controls may be set to configure the unit during installation. Any service work required should be carried out by qualified service personnel only.

We are able to offer further product support through our worldwide network of approved dealers and service agents. To help us provide the most efficient service please would you keep a record of the unit serial number, and date and place of purchase to be quoted in any communication regarding this product.

SAFETY WARNING !

Mains electricity is dangerous and can kill. Mains voltage is present within the console power supply unit. Do not remove the top cover with mains connected. Do not carry out any work within the unit while it is powered. High voltage components are insulated for safety but should not be touched with power applied. The mains voltage setting is factory wired and marked on the rear panel. Check that this matches your local mains supply. Check your mains wiring and earthing before switching on.

DO NOT REMOVE THE MAINS EARTH CONNECTION!

The console chassis is always connected to mains earth regardless of any settings of the Ground (earth) Lift option links.

PRECAUTIONS.

- **AC POWER:** Check the rear panel power supply label for the correct AC mains voltage setting.
- **CONNECTIONS:** Use audio connectors and cables only for their intended purpose. Do not connect any source of AC or DC power to the console audio inputs and outputs. Do not connect the output of power amplifiers directly to the console.
- **VENTILATION:** Do not cover the unit in any way. Position the unit in a well ventilated location in the rack.
- **CLEANING:** Avoid the use of chemicals, abrasives and solvents. The control panel is best cleaned with a soft brush and lint-free cloth.
- **LUBRICATION:** The switches and potentiometers are lubricated for life. The use of electrical lubricants on these parts is not recommended.
- **DIRT, DUST, SMOKE and MOISTURE:** Prevent damage to the moving parts, such as switches and potentiometers, and cosmetics by avoiding drinks spillage, tobacco ash and smoke, and exposure to rain and condensation. Protect from excessive dirt, dust, heat and vibration.

copyright © 1995 ALLEN & HEATH Ltd. All rights reserved
Publication ..... AP2108 Issue 2

EARTHING THE AUDIO SYSTEM

The console chassis is connected to mains earth via the DC power cable. **FOR SAFETY REASONS NEVER REMOVE THE EARTH WIRE FROM THE POWER SUPPLY UNIT MAINS PLUG.** The console audio 0V may be connected to mains earth by linking the chassis 0V and audio 0V terminals on the rear connector panel. To prevent mains born and external interference pick-up on the audio signal it is important that this audio 0V is connected to a good noise-free mains earth, either through the audio cable screens or by linking to a local earth. Multiple earth paths cause earth (ground) loops which may result in audible hum and interference. These may be avoided by making sure that there is only one path to earth from each piece of equipment, disconnecting audio cable screens at one end if necessary.

INTERCONNECTIONS

Where possible use balanced connections for the channel INPUTs and GROUP, AUX SENDS, L-R and MONO outputs to minimise noise pick-up. Avoid running audio cables near to mains or lighting cables or thyristor dimmer units, power supplies etc. These may cause audible hum and buzz. The use of low impedance sources significantly reduces interference pick-up. Check the cables for correct wiring to avoid problems with phase reversal and unreliable connection. The *GL4* follows the convention for XLR pin 2 and jack tip = signal hot (+).

Always use balanced cables when connecting to phantom powered microphones.

MAKE SURE THAT THE +48V SWITCHES ARE OFF WHEN THE CHANNEL INPUT XLRS ARE CONNECTED TO NON-PHANTOM POWERED OR LINE SOURCES.

If ground loops cause problems connect the cable screen at one end only as described below. Balanced outputs may be connected to unbalanced inputs and vice versa by linking the signal cold (-) to 0V ground as follows:

- Balanced output to Balanced input - Connect cable screen at destination only.
- Balanced output to Unbalanced input - Connect screen at source only. Link the -ve output to 0v at the output connector.
- Unbalanced output to Balanced input - Connect cable screen at destination only. Link the -ve input to 0V at the input connector.

ADJUSTING THE LEVELS

For best performance it is important that the console signal levels are adjusted for "normal operating level". If too high the signal peaks will be clipped resulting in a harsh distorted sound, and if too low the signal-to-noise ratio is reduced resulting in excessive background hiss.

For best results operate the console with the output meters averaging '0' or just below and allowing the occasional high level passage to rise into the red. This results in a nominal console XLR output level of +4dBu with ample internal headroom of +23dB to allow for the peaks. It is advisable to use an attenuator pad if you are connecting the outputs to equipment which does not have input level controls and operates at a much lower level. Simply reducing the fader settings (and hence meter levels) to compensate may result in excessive background noise and breakthrough due to the reduced signal-to-noise ratio. The same applies to the console monitor output used to check the console signals through reference loudspeakers. The monitor amplifier should be matched to the console such that normal control room listening levels are achieved with the monitor **LEV** control set around position '5' to '7'. Operating at a lower position, say '2' or '3', degrades the output signal-to-noise ratio and may result in audible hum and noise.

The console PFL (pre-fade listen) / AFL (after-fade listen) system lets you listen to and check the level of signals at different points in the signal path without affecting the main outputs. Use the channel **PFL** switches to set up the input levels. This overrides the phones/monitor outputs with the pre-fader channel signal (in mono) and displays its level on the monitor meters. Adjust the channel **GAIN** controls for an average '0' reading on the meters. Use the L-R **AFL** switches to check the post master fader mix levels. Adjust the channel faders for optimum mix level. The normal operating setting of the faders is at the '0' position, allowing 10dB of boost to the top of travel.

The red channel and group, L-R **PEAK** indicators give instant warning of potential signal overload. These illuminate 5dB before clipping. Reduce channel gain or fader settings as appropriate. Each input and main output fader has a meter ladder showing signal presence (dynamic indication starting at -20dB), 0dB level, and peak (5dB below clipping).

OPTIONS

AUX SENDS: Aux 1-4 and aux 5,6 are switched pre or post fader using panel switches to satisfy most applications without the need to access internal circuits. Pre-fade is set **pre-EQ** and **post-mute** as standard. Contact your service agent should you require alternative settings. The options should be fitted only by competent technical personnel who have reference to the *GL4* service manual.

A further option sets the channel direct outputs from post to pre-fader.

CONSOLE EXPANDER: The *GL4 Sys-link* option may be installed such that two *GL4* consoles operate as one in a master/slave arrangement. Contact your service agent for details.

INTRODUCING THE ALLEN & HEATH

GL4

The GL4 extends the A&H range of multipurpose 'Live' mixing consoles. The GL2 and GL3 4 bus mixers still remain unique in the multifunctionality they provide. The GL4 8 bus design continues the theme and dramatically expands on it.

THE PRODUCT

The GL4 is an 8 bus Front-of-House and 10 bus On-Stage Monitor mixer, with full capability for stereo, mono and multitrack Recording. It is packed with features arranged in an easy to use layout. Special attention has been given to the performance and 'sound' of the console, and to mechanical strength and reliability. The range is introduced with 24, 32 and 40 channel standard models, with separate rack mount power unit. Options include full length VU meterpod, SYS-LINK expander to link GL4 consoles, and RPSD dual supply combiner / monitor.

FEATURE SUMMARY

- 24, 32 & 40 channel standard models
- L, R busses
- Dedicated MONO bus with sub-grouping from L-R
- 8 groups
- 10 aux sends with faders and extensive pre/post switching
- 8 aux returns
- 2 matrix outs
- 2-track record and replay with intermission playback feature
- Channel direct outs
- 4 band full sweep EQ + sweepable lo-cut filter
- 8 mute groups with channel safes and MIDI
- Soft mutes on inputs, groups, L, R, Mono and all auxes
- Talkback to all main outputs
- Mode assign switches for FOH, Monitor and Recording flexibility
- VU meterpod option
- Expandable via SYS-LINK option
- Gooseneck lamp connectors
- All main inputs and outputs balanced XLR
- Inserts on inputs, groups, L, R and Mono outs
- Extensive metering and monitoring capability
- High performance, sonically pure
- Rugged construction, easily flightcased
- Separate rack mount PSU with dual combiner option

DETAILED FEATURE LIST

MECHANICAL

- compact 24, 32, 40 channel sizes
- Rigid extruded beam construction with easy lift feature
- Rugged all metal construction
- comfortable soft armrest
- 3point write-on strip system
- Rear connectors
- removeable steel base
- Non-modular arranged in sections of 8 channels
- individual circuit assemblies with gold plated connectors
- Quickfit meterpod system
- Rack mount power unit

PERFORMANCE

- Enhanced low noise and distortion discrete pre-amp - EIN -128dB
- Frequency response 20Hz to 20kHz -1dB
- +27dB balanced output headroom
- Low system noise, distortion and crosstalk
- Silent FET mute circuit
- Short signal paths and high performance circuitry for signal purity
- High quality smooth travel faders, pots and switches

THE MODE SWITCHES ...

These are under-panel switches which can only be operated with a pen tip or pointed object to avoid accidental operation. They determine the way in which the console is configured and provides the key to the unique flexibility offered by the GL4 to easily convert from conventional Front-of-House to On-Stage Monitor or Recording operation. This makes the GL4 ideally suited as a multipurpose live sound / recording console for the musician on the move or busy hire company.
Special attention has been given to control layout so that the operator is quickly able to understand and get the best from the console without fuss. With all the mode switches in the up position (flush with the panel) the GL4 operates as a conventional FOH console with all control sections clearly recognisable, the usual starting point for the basic user. Pressing one or more mode switches assigns the console for advanced operation:

- MODE A - Reverse aux send with group (for Stage Monitor sends)
- MODE B - Reverse aux return with group (for multitrack Recording)
- MODE C - Reverse matrix send with aux send (for fader control)
- MODE D - Link aux to related matrix (for extended foldback and cue)
- MODE M - Select L-R meter source (for Stage Monitor function)
- MODE W - Convert Mono out to full feature wedge monitor output
- DISABLE - Disable mute groups when not required
- GROUP MODE - Select single or multi (additive) mute grouping
- MIDI SLAVE - Set mute groups for control from another console

FRONT-OF-HOUSE

This is the standard application for a conventional live sound console, controlling the sound amplification system feeding the audience, and with foldback to the musicians on stage. This applies equally to small clubs and bands to theatres and the larger indoor and outdoor performance venues. The GL4 satisfies this function with no compromise :

- 24-8-2-1, 32-8-2-1, 40-8-2-1 standard models
- L, R and dedicated Mono for centre fill, vocal reinforcement, special effects etc.
- 8 subgroups
- 2 matrix outputs for seperately balanced sends to additional loudspeaker systems
- 10 aux sends and 8 returns allow plenty of foldback monitor feeds, effects control, and additional line inputs
- Sweepable lo-cut filter to reduce stage noise, and wide ranging 4 band full sweep EQ to correct problems in non-ideal acoustic environments or with poor quality sources, or for effect
- 8 mute groups to switch combinations of signals with single key presses, scene switching, and special effects. With MIDI interface to link to computer performance control systems
- Simultaneous multitrack, stereo or mono recording facility
- Post-fader 2-track intermission playback feature
- Balanced XLR inputs and outputs for long interference free cable runs
- Comprehensive metering, peak indication and monitoring facilities for total control of the wide dynamic range usual in live sound amplification, with PFL trim adjust

ON-STAGE MONITOR

The need for accurate control of the musicians on-stage monitor systems has resulted in the current trend for dedicated on-stage mixing consoles for this task alone. This taps the signals from stage splitter boxes which feed the FOH mixer elsewhere. The requirements of a stage monitor console are noticeably different from a conventional FOH console, a separate model usually required ... until the Allen & Heath GL Series. The GL4 expands the principle of the multifunctional console even further by providing unique mode assignment switches which quicly convert from FOH to full function Stage Monitor operation, and even to dedicated multitrack recording operation ... your hire stock need only include this one model for all these tasks!

- 24-10, 32-10, 40-10 standard models
- 10 dedicated monitor sends with pre/post switching, full metering and signal checking, long throw faders, and balanced XLR outputs
- Inserts on all monitor sends for stage graphic Eqs etc.
- Talkback to all monitors
- Comprehensive stage engineers wedge monitor facility for AFL monitoring of the sends, interrupted by PFL for signal checking

RECORDING

The GL4 is ideal for stereo and mono recording, 8-track multitracking with full monitoring, and is capable of multitrack recording beyond 8 tracks :

STEREO RECORDING

- Dedicated stereo recording, simultaneous live sound and location recording, mixdown during multitrack recording
- 8 subgroups with foldback capability
- Plenty of auxes for effects and foldback sends
- Returns may be used for effects and additional line inputs to the mix
- Comprehensive monitoring with individual control of headphones and studio monitor speaker system
- 2-track level control

MONO RECORDING

- 2-track may be fed from the dedicated Mono bus
- L and R signals may be mixed into the Mono record signal, useful when providing a mono recording or broadcast feed during live sound mixing
- Up to 10 subgroups possible during mono recording

8-TRACK MULTITRACK RECORDING

Mode switching allows typical setup with:

- Full balanced connection to the multitrack for simultaneous recording of all tracks with stereo monitoring and metering
- Group sends on small faders
- Multitrack returns on large faders with stereo monitoring, meters, and feeds to the musicians cue for overdubbing
- 2 mono or 1 stereo musicians cue sends on aux 9-10 mixed from inputs and track returns
- Talkback to the groups for track identification

MULTITRACKING MORE THAN 8 TRACKS

- 8 groups may be connected in parallel to the multitrack to access more than 8 tracks
- Up to 16 groups with stereo monitoring may be recorded simultaneously by using aux sends 1 to 8 in addition to the groups, with aux 9 and 10 still available for cue sends. With no Returns connected the Return sections feed these aux groups to the stereo and mono mix.
- Additional tracks may be recorded from the channel Direct outputs, ideal for multitrack recording during live sound mixing

SPECIFICATION

0 dBu = 0.775 Volts RMS
0 dBV = 1 Volt RMS
Line level options: +4dBu (high level), 0dBu, -10dBV (300mV low level)

INTERNAL OPERATING LEVEL: -2 dBu
INTERNAL HEADROOM: ..... +23 dB
MAX OUTPUTS:..... balanced +27 dBu 600 ohms max load
unbalanced +21 dBu 2kohms max load

METERS:..... Groups, L,R,M .... peak reading 12 segment LED
-25VU (signal), 0VU, +12VU (peak)
Channels, Groups, L, R, M ..... 3 segment LED - Peak, 0dB, signal
(on from -20dB)

PEAK LEDs: ..... Turn on 5dB before clipping

OPTIONAL VU METERPOD ..... Groups, L, R, Mono (PFL/AFL)
illuminated meters and
PFL/AFL active indicator

POWER SUPPLY..... RPS10 or RPS5B - 3U 19"rack mount
AC Mains input:..... factory wired for 100V, 110V, 120V, 220V or
240V @ 50/60Hz.
DC output: ..... +16V @ 4A, -16V @ 4A,+48V @ 400mA

FREQUENCY RESPONSE: 20Hz to 30kHz +0/-1dB

DISTORTION: THD + NOISE @ +20dBu 1kHz output
Mic in to LR out (40dB)...<0.006%
Line in to LR out (0dB)....<0.006%

CROSSTALK:. Channel shut off... < -80 dB at 1kHz
Channel pan..... < -75 dB at 1kHz
Channel fader down<-90dB at 1KHz
Interchannel ..... < -100 dB at 1kHz

NOISE:..... 20kHz bandwidth, ref 0VU, 24 channels
MIC EIN (150 Ohm load) ..... <-128 dBu
LINE pre-amp at 0dB ..... <-93 dBu
L R MIX noise ..... <-83 dBu
Group MIX noise ..... <-85dB
Aux MIX noise (sends off) ..... <-85dB
Matrix A,B, (outputs off) ..... <-100dBu
Aux, (outputs off) ..... <-97dBu
Groups, L, R, Mono (outputs off) <-97dB

CONNECTIONS

INPUTS:

MIC IN	XLR	pin 2 hot, 3 cold balanced	2 kohms	variable -60 to -6dBu
	LINE (pad selected)	pin 2 hot, 3 cold balanced	10kohms	variable -40 to +14dBu
LINE IN	1/4" JACK	tip hot, ring cold balanced	10 kohms	variable -40 to +14dBu
AUX RETURN IN	1/4" JACK	tip hot, ring cold balanced	10 kohms	-10dBV or +4dBu
INSERTS	1/4" JACK	tip send, ring return unbalanced		0dBu, Outputs -2dBu
2-TRACK INPUT	1/4" JACK	unbalanced	10 kohms	variable -10dBV

OUTPUTS:

L, R, MONO OUT, GRP, AUX, MATRIX A,B	XLR	pin 2 hot, 3 cold balanced	50 ohms	+4dBu .
DIRECT OUT	1/4" JACK	tip hot, unbalanced	2 kohms	0dBu
MONITOR	1/4" JACK	tip hot, unbalanced	2 kohms	0dBu variable
2-TRACK OUTPUTS	1/4" JACK	tip hot, unbalanced		0dBu variable
HEADPHONES OUT	1/4" JACK	tip L, ring R	for stereo headphones 8 to 400 ohms	
(2 SOCKETS)	1/4" JACK	tip L, ring R		

MECHANICAL DETAILS

UNPACKED

FORMAT	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)	WEIGHT (Kg/lbs)
GL4-824	1166	780	200	39 / 85.5
GL4-832	1421	780	200	48 / 106
GL4-840	1676	780	200	56 / 123
Meterpod	1154-1664	56	106	6 / 13.2
RPS10/5B	482 (19")	260	140 (3U)	9 / 19.8
RPSD	482 (19")	180	45 (1U)	4.5 / 9.9

PACKED

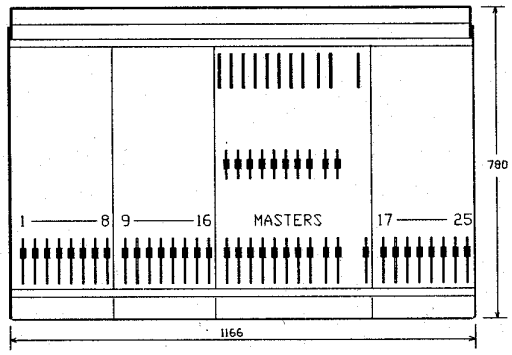
FORMAT	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)	WEIGHT (Kg/lbs)
GL4-824	1668	920	470	70 / 154
GL4-832	1668	920	470	76 / 167
GL4-840	1923	920	470	88 / 194
Meterpod	1194-1704	96	146	6 / 13.2
RPS10/5B	520	400	320	11 / 24.2
RPSD	520	400	115	6 / 13.2

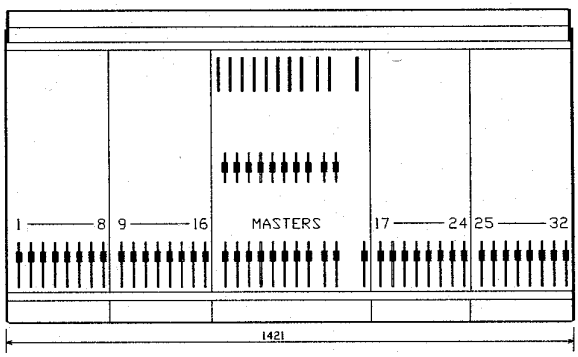
STANDARD CONSOLES

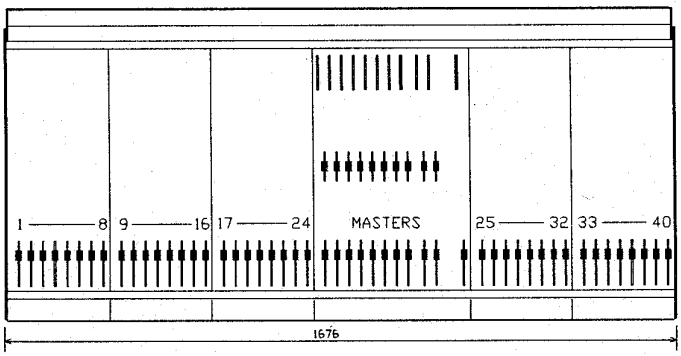
GL4-824 GL4-832 GL4-840

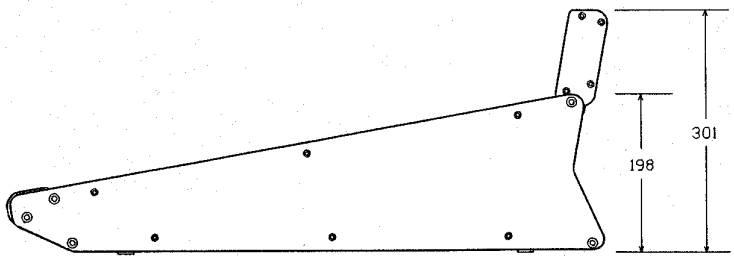
24 channel 32 channel and 40 channel

With separate RPS10 rack mount power unit.
Optional RPSD dual supply combiner / monitor
Optional VU meterpod, and optional SYS-LINK expander system.

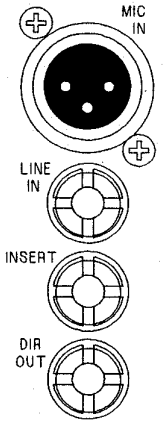








INPUT



MIC/LINE IN CONNECTOR

3-pin female XLR. Electronically balanced. Pin 2 = hot.
May be used for XLR line input when the LINE IN jack is left unplugged.

LINE IN CONNECTOR

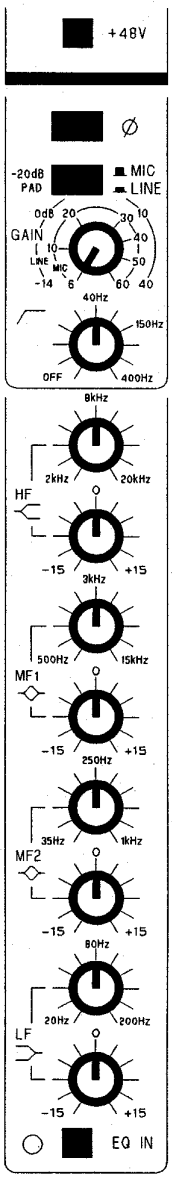
3-pole 1/4" jack socket. Electronically balanced. Tip = hot.

INSERT CONNECTOR

Used to insert external effects and signal processing equipment into the audio signal path, post pre-amp and pre-EQ.
3-pole 1/4" jack socket. Unbalanced 0dBu line level.
Tip = send, ring = return.

DIRECT OUT CONNECTOR

Provides a buffered signal from the channel, ideal for minimum signal path connection to multitrack recorders. Set post-fader, post-mute as standard. May be internally set to pre-fader.
3-pole 1/4" jack socket. Ground compensated line level 0dBu.
Connects to balanced or unbalanced equipment inputs.



+48V PHANTOM POWER

Switches internal +48V DC to the MIC XLR to supply phantom powered microphones. May be disabled by internal link option.

PHASE REVERSE

Reverses the phase of the input source to correct the phase differences often encountered in microphone placement, or due to reverse wired interconnecting cables. May also be used to minimise acoustic feedback between closely positioned loudspeakers and microphones in live sound mixing.

MIC/LINE

Selects either the MIC or LINE input source. May be used as a 20dB attenuator pad to further extend the mic gain range when the LINE input jack is not used.

GAIN

A new high performance pre-amplifier stage matches the input source to the console. Wide ranging (MIC +6 to +60dB, LINE -14 to +40dB gain) with 2-point control to ensure a smooth response.

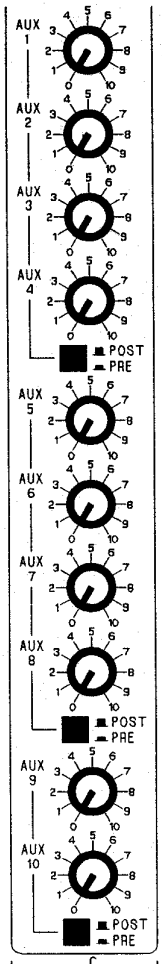
SWEEPABLE LO-CUT FILTER

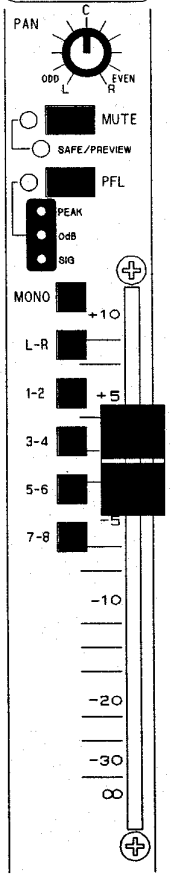
To reduce low frequency source noise such as pops when close miking, stage noise or transport rumble. Sweep control to precisely set the filter cut-off point to a maximum of 400Hz. Off enables the full bandwidth of better than 20Hz to 30kHz -1dB.

4-BAND FULL SWEEP EQUALISER

Offers precise and full range control of the tonal characteristics of the source. Includes IN/OUT switch.

HF	+/- 15dB	2kHz to 20kHz	shelving
MF1	+/- 15dB	500Hz to 15kHz	peak/dip
MF2	+/- 15dB	35Hz to 1kHz	peak/dip
LF	+/-15dB	20Hz to 200Hz	shelving





AUX SENDS

A full 10 aux sends with pre-post fader switching and individual level controls allow uncompromised routing to combinations of external effects devices, cue systems, stage monitors and the like. These are arranged in two groups of four, and one group of two for logical grouping of effects and monitor sends. Internal link options allow permanent connection pre or post fader rather than switched if required. Further link options select the pre-fade sends to be pre or post EQ and pre or post mute (pre-EQ, post-mute standard setting).

PAN

Positions the signal between L (odd) and R (even) of the routed outputs. Does not affect the MONO bus.

MUTE

Toggles the channel signal on or off (muted) using a silent FET circuit with red LED to permanently indicate signal status. In EDIT mode it is used to program the channel within a selected mute group, or to set the channel to "safe" (not affected by the mute groups). A separate green SAFE/PREVIEW LED indicates status within the mute group system. This normally shows if the channel is set to "safe". When in PREVIEW mode it shows if the channel is set to be on or muted within the selected mute group.

PFL

Automatically overrides the selected monitor source with the pre-fader channel signal to check signal quality and gain setting. Adjust GAIN for average 0dB meter level.

INPUT METER

For complete control of the channel signal level a 3-bar LED meter shows pre-fader signal presence (dynamic indication starting from -20dBu), 0dB normal level, and signal peak (5dB below clipping).

ROUTING

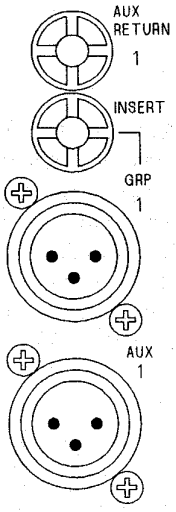
A switch bank routes the post-pan signal to the L-R and group pairs, and the pre-pan signal to the MONO mix.

In FOH applications the MONO bus allows creation of a dedicated mono mix not affected by the setting of the channel pan controls which control the stereo image of the L and R speaker systems or feed the subgroups. In STAGE MONITOR applications the MONO bus is used for AFL monitoring to the stage engineers wedge speaker. In RECORDING applications this bus allows simultaneous stereo and mono recording.

FADER

100mm long throw smooth travel fader offers +10dB boost above the normal '0' operating level. A raised write-on strip below the faders is used to number and identify the channels.

GROUP (LGE FADER)

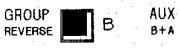


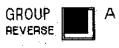
GROUP OUT x 8

This section offers the same capability as the INPUT section including full pre-fade signal and peak metering, PFL monitoring, insert, and mute grouping. In addition a 12 segment peak responding bargraph meter follows the post-fade signal.
Group out 3-pin male XLR. Electronically balanced. Pin 2 = hot.

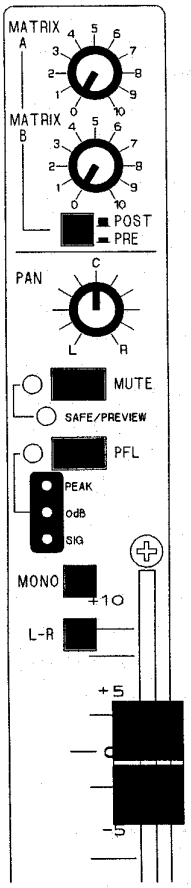
MODE SWITCHES

Introducing a new and powerful level of control flexibility ...
The large fader source is normally the group mix, with the 'mode' switches up. Alternatively, the return input or aux send may be selected by assigning the mode switches, so reversing the group with those sections.





FOH application - Normal console setting, mode A and B switches up. Group on large fader, aux send on small fader, aux return on rotary control.
STAGE MONITOR application - Mode A selected. Aux send on large fader for stage monitor send, group on small fader, with subgrouping to the L-R and Mono mix through the return section if required.
INPUT application - Mode B selected. Return input on large fader for extra line inputs to main mix, group on rotary control with subgrouping capability to main mix.
MULTITRACK application - Mode A and B selected. Track return from multitrack on large fader with metering and cue send capability, group send to multitrack on small fader, aux send on rotary control.



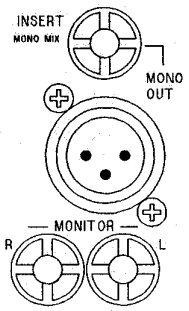
MATRIX A and B

The groups, L, R and Mono outputs may be mixed to the two matrix outputs via the MATRIX A and MATRIX B controls to provide alternatively balanced speaker feeds etc. The source may be selected pre or post fader as required. The powerful Aux 9-10 link feature (MODE D) allows the groups (subgroups, stage monitors or returns as selected on the 'mode' switches) to feed effects or cue/foldback sends in the same way as the inputs.

SUBGROUPING

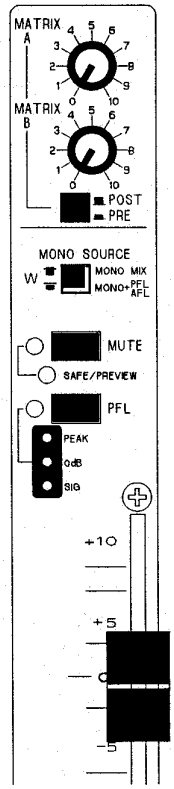
Each group may be routed to L-R via PAN and to MONO pre-pan for stereo or mono subgrouping to the mix. Select the MONO and L-R switches accordingly. This enables grouping of signals such as drum kits and vocals under one fader, and with insert capability for effects and signal processing.

MONO



MONO OUT

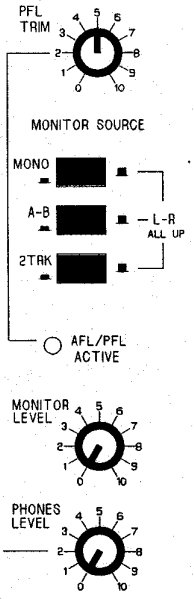
This is the main mono mix output with control section as L-R but without subgrouping. Includes full pre-fade signal and peak metering, PFL monitoring, insert, matrix sends, and mute grouping. Includes a 12 segment peak responding bargraph meter which is interrupted to indicate PFL or AFL.
The fader source is always the mono mix.
Mono out 3-pin male XLR. Electronically balanced. Pin 2 = hot.



MODE W (WEDGE MONITOR)

For no compromise on-stage monitoring ...
This under-panel 'mode' switch converts the output from Mono mix to Mono mix interrupted by PFL/AFL to feed the engineers wedge monitor system in STAGE MONITOR applications. Normally he would listen to his selected monitor output by pressing the MONO routing switch in that output section. Pressing any PFL or AFL then overrides the selected output for signal checking. The mono meter shows the monitored signal. Pressing TALK automatically dims the wedge signal to avoid acoustic feedback. This full feature wedge monitor facility includes long throw fader, muting, insert and balanced XLR output. In this mode Matrix A and B are fed from the mono mix pre-fader in both positions of the pre/post switch. The matrix signal does not include PFL/AFL.

STEREO MONITOR



MONITOR OUT

Separate L and R 1/4" 3-pole jack sockets to feed a studio amplifier / speaker monitoring system. Separate level control.

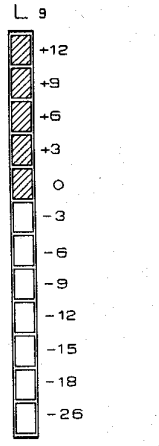
PHONES OUT x2

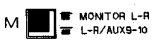
Two outputs, one front panel and one under the console armrest. Separate headphones level control.

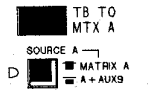
MONITOR SOURCE

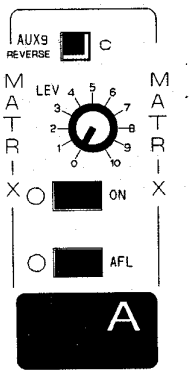
3-way switchbank to select L-R (all up), Mono, matrix A-B, or 2TRK to the stereo MONITOR OUT. Automatically interrupted by PFL or AFL, indicated by the panel PFL/AFL LED. Includes a PFL TRIM control to balance the PFL level against the normal monitoring level. Note that PFL TRIM does not affect the Mono output in Stage Monitor mode (wedge monitor out). PFL/AFL signal is shown on the Mono meter, the selected stereo source on the L-R meters (unless meter mode M is assigned).

MATRIX









MATRIX OUT x 2

3-pin male XLR. Electronically balanced. Pin 2 = hot. Fed from the groups, L, R and Mono sections these provide alternatively balanced outputs for additional speaker systems, foldback or cue sends, or recording.

CONTROL SECTION

The ON switch with green LED turns the output on or off. AFL provides post-level monitoring. TB TO MTX enables talkback to the matrix mix when TALK is pressed.

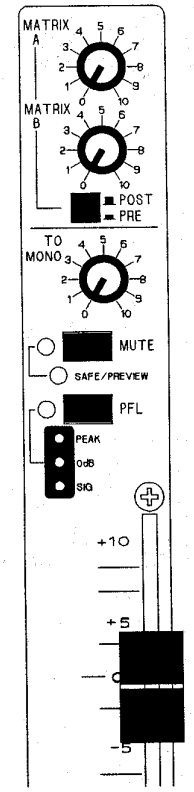
MODE D (SOURCE)

This under-panel 'mode' switch selects the source to the matrix section to be either the A (B) mix, or A (B) + aux 9 (10). The pressed position allows the matrix output to become an aux send fed from both the inputs and the outputs, useful for 'quick' monitor setup from the groups, or musicians cue sends to include track replay during multitrack recording.

MODE C (AUX REVERSE)

This under-panel 'mode' switch reverses the matrix section with the related aux section for situations where fader control and mute grouping are required. With both mode C and D assigned the aux 9 (10) fader becomes the matrix output including the related aux mix such that the row of matrix send controls may be considered a continuation of aux 9 (10).

L-R



L-R OUT

This is the main stereo mix output with individual control sections as the group section. Includes full pre-fade signal and peak metering, PFL monitoring, insert, matrix sends, and mute grouping. Includes a 12 segment peak responding bargraph meter. The fader source is normally the L-R mix, with mode A switch up. Alternatively, the aux send may be selected by reversing the sections. This provides up to 10 outputs in a stage monitor system. L-R out 3-pin male XLR. Electronically balanced. Pin 2 = hot.

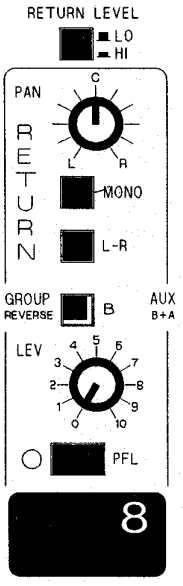
TO MONO

Controls the level of the L-R signals to the Mono mix. Used to feed a centre fill speaker system from the main stereo mix in FOH applications, or for an additional pair of subgroups to Mono.

MODE M (METER SELECT)

Under-panel 'mode' switch to select the source to the L and R bargraph meters. Normally the selected monitor source (L-R, Mono, A-B or 2TRK), this may be switched to follow the large fader source (L-R or aux 9-10). The latter mode is used for STAGE MONITOR applications where the meters permanently follow the 10 stage monitor sends.

AUX RETURN



RETURN IN x 8

Used to return processed signals from external effects equipment, or track returns from a multitrack recorder, or simply as additional line inputs to the mix.
3-pole 1/4" jack socket. Electronically balanced. Tip = hot.
The HI/LO switch adjusts the sensitivity for either hi level (+4dBu) or lo level (-10dBV) equipment.
With nothing plugged in, the small fader signal (aux send or group) is normalled through this connector to extend the subgrouping capabilities.

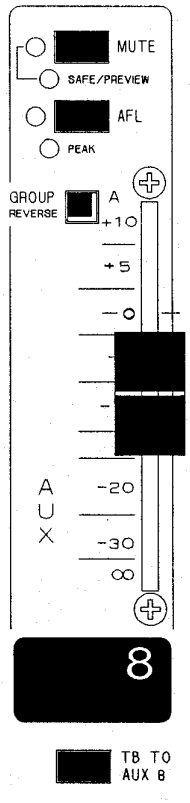
CONTROL SECTION

The return signal may be routed to L-R via the PAN control, and to the MONO bus pre-pan. The pre-level signal is monitored using the PFL switch.

MODE B (GROUP REVERSE)

This under-panel 'mode' switch reverses the RETURN section with the large fader (GROUP or AUX) section for applications where additional return input flexibility such as fader control, mute grouping, inserts, metering and aux sends (via matrix controls) is required. This is especially useful when the returns are used as additional line inputs in live sound mixing, or as multitrack returns with cue monitoring in recording.

AUX SEND (SML FADER)



SEND OUTPUT x 10

Used to send mixed signal from the console to external effects and processing equipment (post channel faders), or as foldback or cue monitors for live sound or recording applications (pre-faders).
3-pin male XLR. Electronically balanced. Pin 2 = hot.

MUTE GROUPING

Part of the console mute grouping system, complete with MUTE and SAFE/PREVIEW LEDs. Allows advanced effects capability such as gated delays and reverbs.

CONTROL SECTION

60mm smooth travel fader for greater level and visual accuracy than that achieved with a rotary control. AFL automatically overrides the selected monitor source with the post--fader send signal. To warn of overload of the aux mix the PEAK led lights 5dB before clipping pre-fader. The TALKBACK ENABLE switch is positioned for quick access and enables talkback to the aux mix when TALK is pressed, ideal for talkback to the musicians cue or stage monitor systems.

MODE A (GROUP REVERSE)

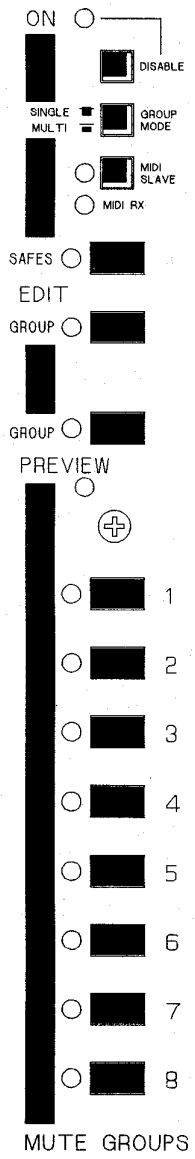
This under-panel 'mode' switch reverses the AUX section with the large fader (GROUP). It is this switch that provides the capability for full feature stage monitoring with 10 individual monitor sends with long travel output faders, full metering, inserts for graphic Eqs etc., and PFL and AFL monitoring. In this mode the groups are still available for additional sends and sub-mixing.

MUTE GROUPING

Refer to the Mute Group Section later in this manual.

MUTE GROUPS x8

The console mute groups work in much the same way as conventional DC groups common in live sound consoles. However, this system uses a programmable logic system that does away with the multitude of channel switches required, and further extends the system to work with MIDI for external control and to connect to a second console if required for linked operation. All channel inputs, aux sends, group outputs, L, R and Mono outputs are included in the mute group system.
There are eight programmable mute group masters with LED indicators. The settings are retained in non-volatile memory.



Setting the way the system works ...

3 under-panel switches determine the operating mode:
DISABLE - To turn the mute grouping system off, to prevent accidental operation in applications where the system is not required. The channel mutes continue to operate as normal but are not affected by any of the group switches or MIDI commands received.
GROUP MODE - In the up position assigns the 8 group master switches for 'single' operation, to be used as patches or scenes one at a time. Pressed selects 'multi' operation allowing combinations of the groups to be selected together.
MIDI SLAVE - Pressed, this assigns the console as a 'slave' to be linked to another 'master' console via MIDI. The slave console mute group control section is disabled and its grouping controlled by the master console grouping system.

EDIT GROUP

A flashing LED status indicates edit mode. The channel mute switches are used to program the selected group. Editing the groups does not affect the current channel mute status. The mutes are changed only when a group is selected in non-edit mode.

EDIT SAFE

Individual channels may be removed or 'made safe' from the mute group system. These are shown on the green SAFE/PREVIEW LEDs. The channel MUTE switches operate as normal.

PREVIEW

The PREVIEW switch allows the selected mute group to be viewed on the channel SAFE/PREVIEW LEDs without affecting the current mute status.

MIDI

IN, OUT and THRU sockets are provided to interface the console to external MIDI equipment. Individual channel mutes and group changes may be stored or recalled. Rear panel DIP switches are used to set the MIDI channel number.

Ease of operation ...

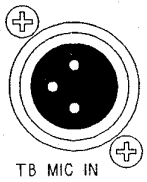
The operation of the mute group system is made simple and intuitive with just three system control keys.



LAMP

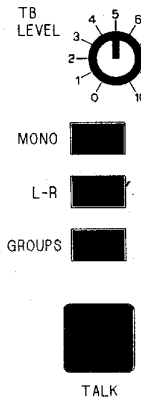
2 BNC connectors to plug in standard 12V gooseneck lamps to illuminate the control surface in low level light applications.

TALKBACK



TB MIC IN

Front panel 3-pin female XLR. Electronically balanced. Pin 2 = hot. Phantom power internally link selectable. Level trim control to allow a wide range of input sources. It is recommended that a balanced source is connected to the TB input.



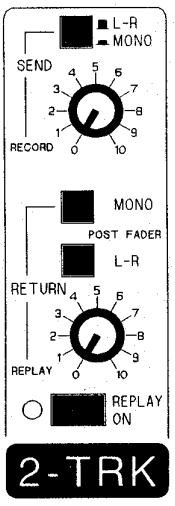
ENABLE

Talk to all the main console outputs as you need ...
Latching enable switches in the aux and matrix sections. Also talk to Mono, L-R and Groups enable switches.

PRESS TO TALK

Large momentary switch to talk to the enabled destinations.

2-TRACK



SEND (OUT)

Individual 3-pole 1/4" jack sockets. Unbalanced line level.
Level control to match to connected equipment. Connects to the 2-track recorder input, or may be used as an additional buffered mix output.
The source may be selected either from L-R or from Mono mix post-fader.

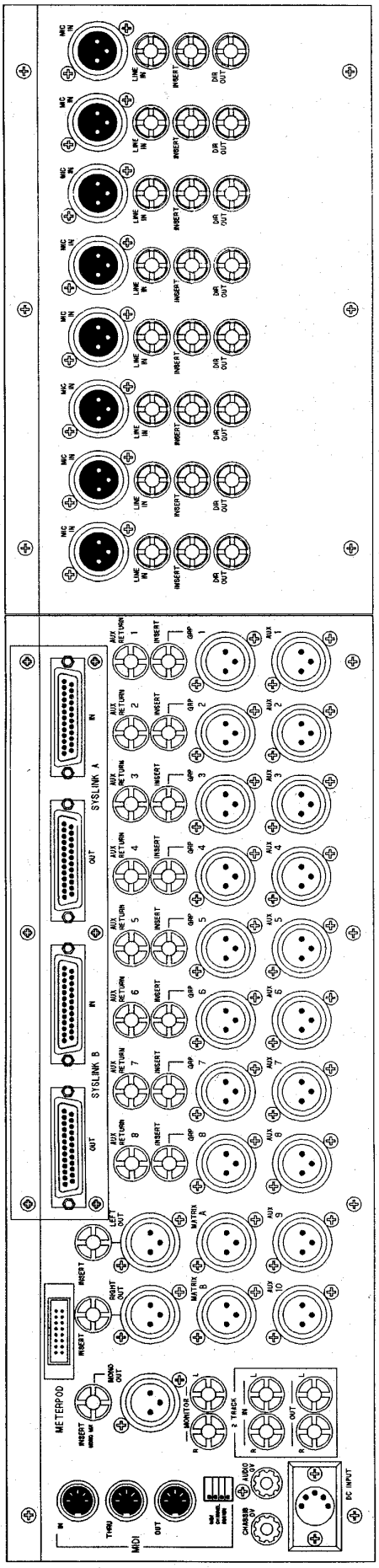
RETURN (IN)

Individual 3-pole 1/4" jack sockets. Unbalanced line level.
Level control to match the connected equipment to the console. Connects to the 2-track recorder output, or to a stereo replay device such as a CD player. The return is monitored in the stereo monitor section to check playback of the mastering machine during recording, or line-up of the replay machine during intermission playback.

INTERMISSION PLAYBACK

The 2-track may be routed to the L-R and Mono outputs post-master faders for live sound intermission playback. A separate ON switch with green LED is included to prevent accidental replay. The post-fade facility allows PFL monitoring of the main mix with the faders down to check the console mix without affecting the playback.

CONNECTORS



CONSOLE INPUTS/OUTPUTS

High quality professional connector types are used throughout to ensure continued reliable operation.
All the console main inputs and outputs are balanced XLRs, with the channel line inputs available on both XLR and 1/4" jack. All unbalanced connections are line level 1/4" 3-pole jack sockets, with outputs low impedance and inputs high impedance.
Inserts are provided on the groups, L, R and Mono outputs. These are unbalanced 0dBu on 1/4" jack socket with tip = send, ring = return.

MIDI

Standard 5-pin MIDI in, out and thru connectors are fitted. Channel assignment is by 4way mini DIP switch.

OPTIONAL METERPOD

A recessed dual row connector is fitted to allow connection to the optional meterpod. The cable is supplied with the meterpod.
The optional meterpod provides illuminated VU metering of the main console outputs including, L, R, Mono and Groups.

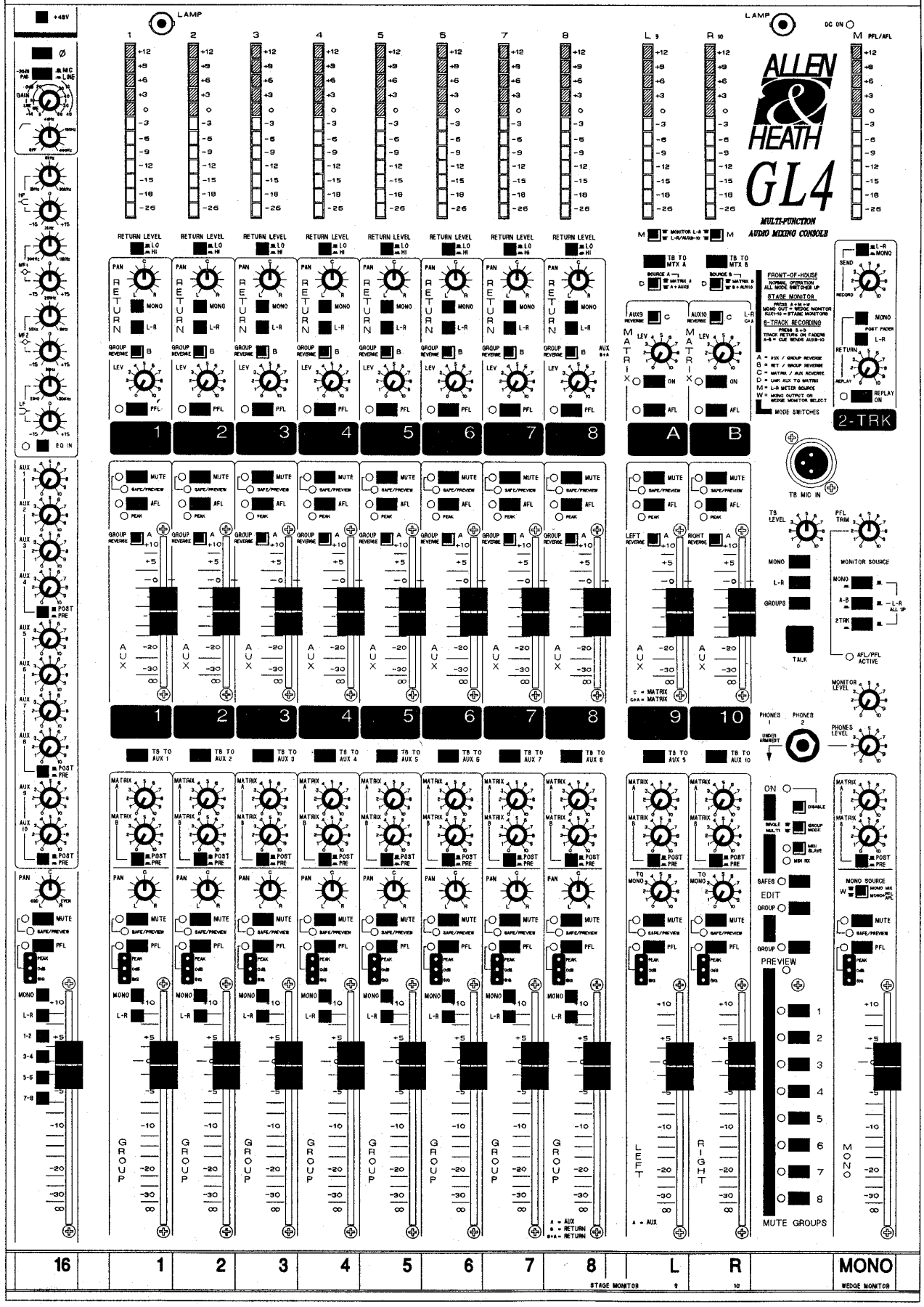
POWER

The console connects to a separate power supply unit via the 5-pin DC input connector socket. A chassis 0V and an audio 0V terminal post are provided to optimise the system grounding.

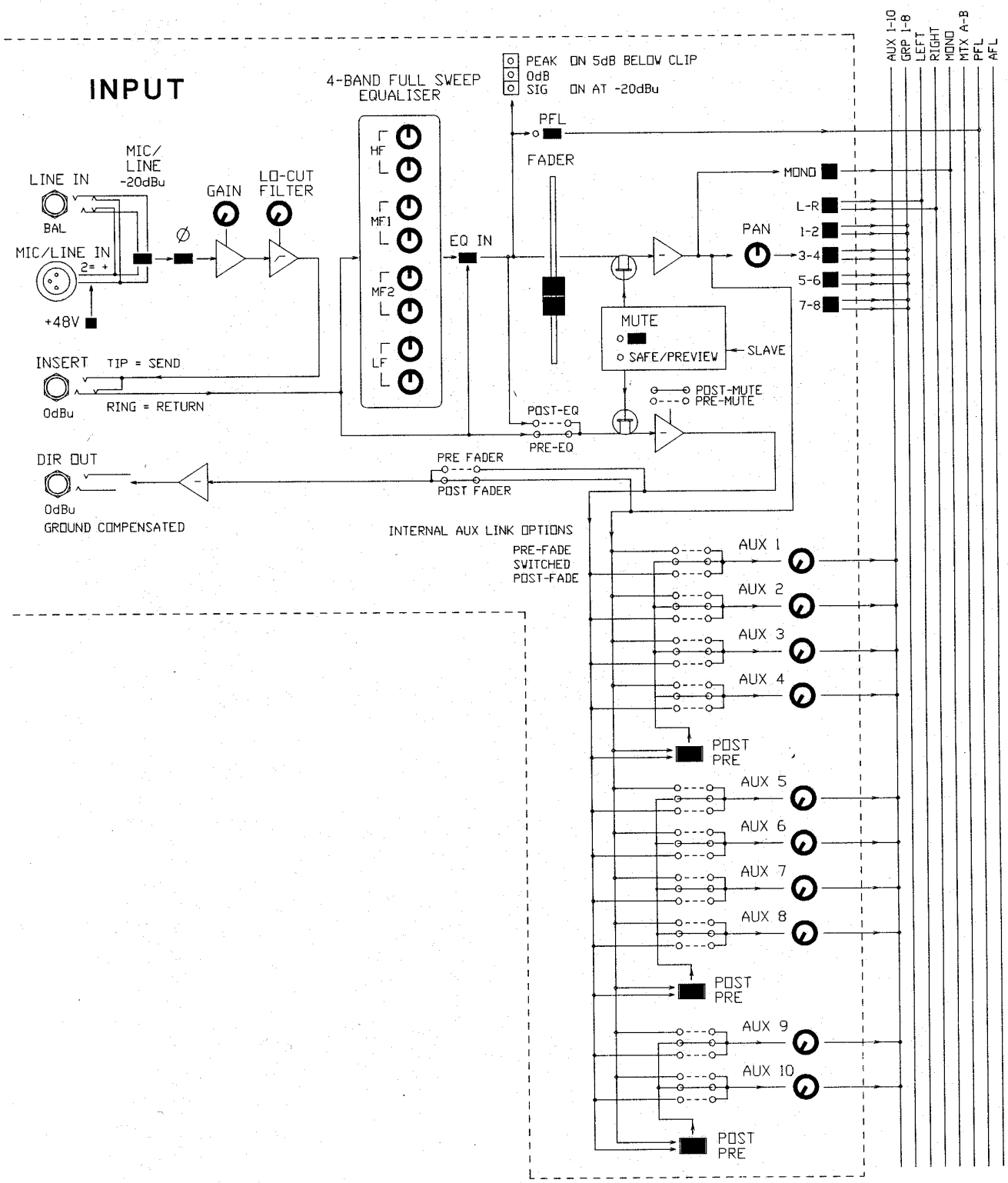
SYS-LINK OPTION

A set of 25-pin D-type female connectors may be fitted as an option to allow consoles or expander units to be linked together to expand the number of channels. The interconnecting cable is a readily available standard 25pin male to male computer type. The interconnection level is -2dBu with outputs low impedance and inputs high. All signals are in-phase. Up to 3 units may be linked in this way.

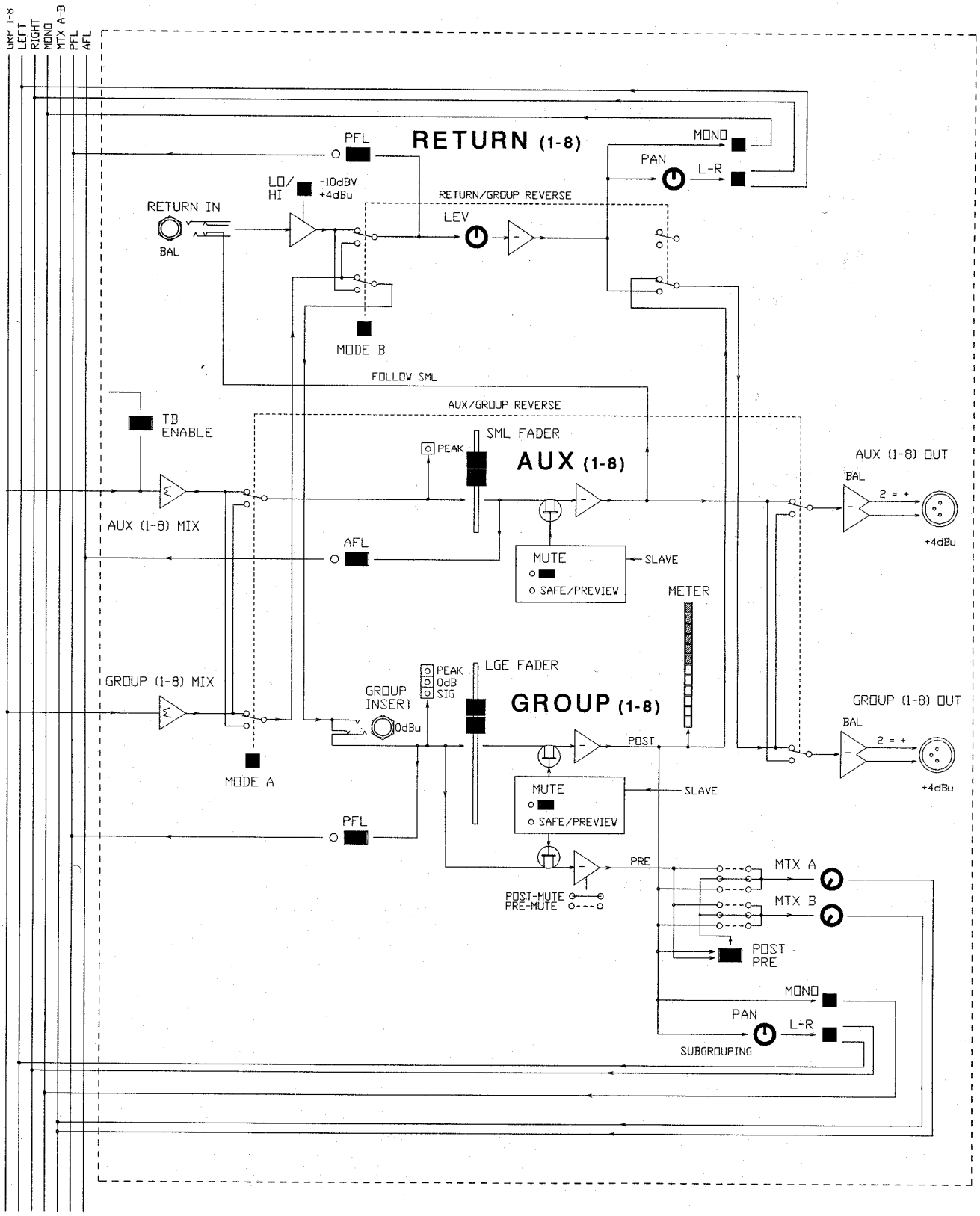
Order Option Kit: GL4-SL1 for one console
GL4-SL2 for two consoles


ALLEN & HEATH
GL4
MULTI-FUNCTION AUDIO MIXING CONSOLE
LAMP
RETURN LEVEL
RETURN
PAN
MONO
L-R
GROUP REVERSE
LEV
PFL
MUTE
SAFE/PREVIEW
AFL
PEAK
AUX
GROUP
MATRIX
POST
PRE
TB TO MTX A
TB TO MTX B
FRONT-OF-HOUSE
STAGE MONITOR
6-TRACK RECORDING
MODE SWITCHES
2-TRK
TB MIC IN
TB LEVEL
PFL TRIM
MONITOR SOURCE
TALK
AFL/PFL ACTIVE
MONITOR LEVEL
PHONES 1
PHONES 2
PHONES LEVEL
TB TO AUX 1
TB TO AUX 2
TB TO AUX 3
TB TO AUX 4
TB TO AUX 5
TB TO AUX 6
TB TO AUX 7
TB TO AUX 8
TB TO AUX 9
TB TO AUX 10
EDIT
GROUP
PREVIEW
MUTE GROUPS
LEFT
RIGHT
MONO
STAGE MONITOR
WEDGE MONITOR
16
1
2
3
4
5
6
7
8
L
R
MONO

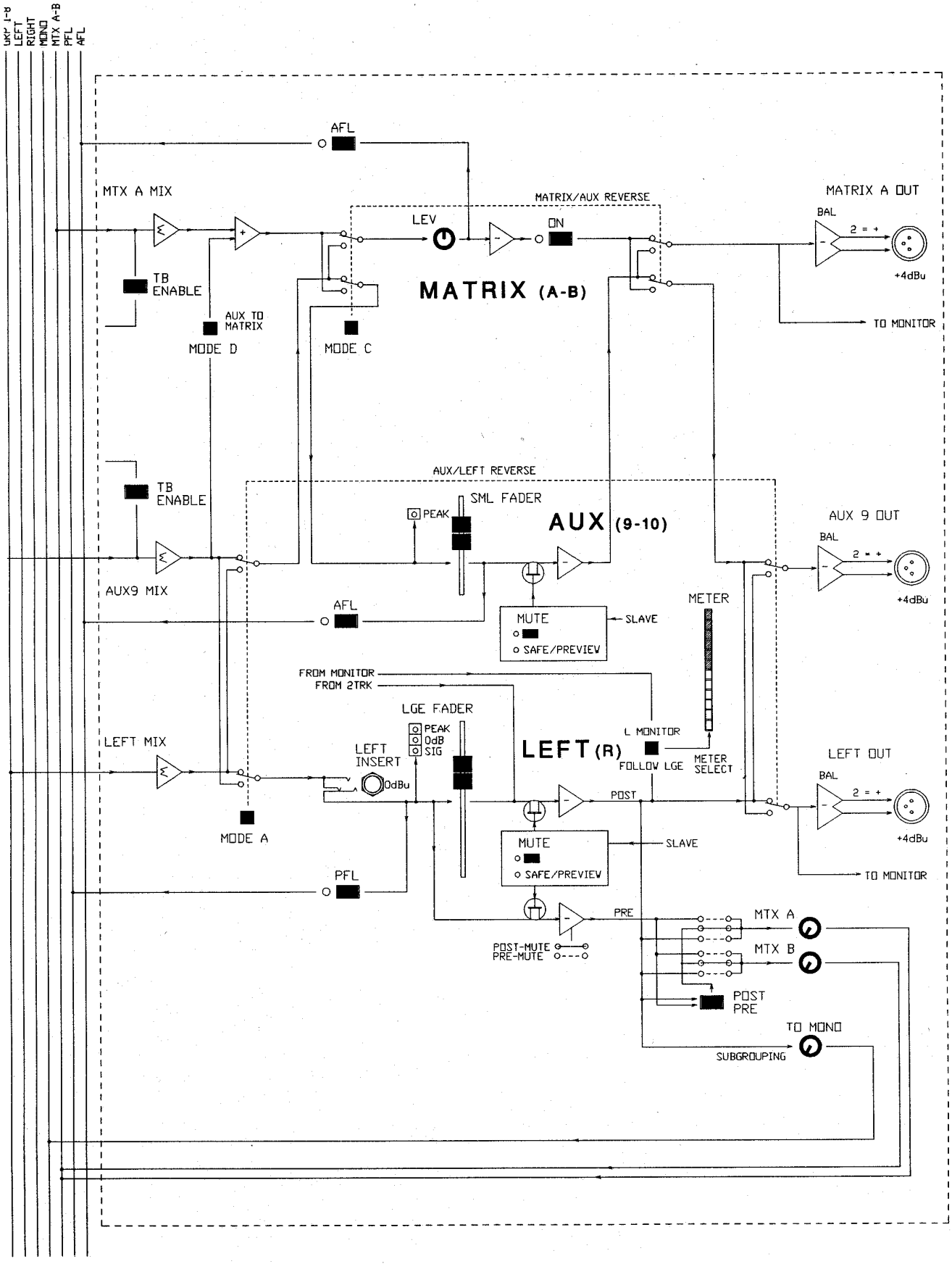
INPUT BLOCK DIAGRAM



GROUP SECTION BLOCK DIAGRAM



L-R SECTION BLOCK DIAGRAM



MONITOR SECTION BLOCK DIAGRAM

