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**SOUNDCRAFT VENUE II** 

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*USER GUIDE*

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This equipment complies  
with the EMC Directive  
89/336/EEC

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# Introduction

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# Introduction to the Venue II

The Venue II is a fully modular 8 bus mixer providing unique versatility for live mixing, whether it's in a medium-sized theatre or concert hall, a conference auditorium or church.

*The console provides full 8 bus routing and six independent auxiliary sends, and both Mono and Stereo Input offer four mute groups. This allows the status of each channel to be controlled by four master mute busses for rapid resetting of the console during a live performance.*

The Stereo Input includes a further innovation - a Stereo Width control, enabling the width of a stereo image to be continuously varied. This is a unique feature on a console of this type, and is ideal for enhancing theatre sound effects.

The Venue II series comprises a range of input module, output module and frame options that lets you configure the console for a wide variety of applications, and to alter the layout very easily if required. The only constraint on the selection and positioning of modules is that any console must have a master module (2 channels width) fitted, and that any group output modules fitted have to be positioned immediately to the left of this.

**Should you wish to replace or add extra modules, please contact your authorised Soundcraft dealer, who can supply the modules and change the configuration without voiding the warranty.**

The output section of the Venue II has been carefully designed to offer the maximum number of independent outputs in a compact mixer. The Dual Matrix module provides superb versatility for theatre applications, allowing additional output mixes to be created from signals present at the group and mix outputs, or from external submixers. A full 8 x 8 matrix is created by using only four modules, although any number can be specified.

The Dual Group/EQ module packs two independently controlled output groups into one module, each with a 3 band mid sweep EQ section. For even greater flexibility the Dual Group/Stereo Return module contains all the features required for generating subgroups and stereo effects returns, and the stereo return section is ideal for bringing in additional stereo sources without taking up valuable input modules.

The Venue II is supplied in four frame sizes - 16, 24, 32 or 40 channels. A removable overbridge is available as an option on the three larger frame sizes, and may be fitted with either moving coil VU or PPM meters, or with LED bargraphs.

# Precautions and safety instructions

## **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, high power 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 console power supply away from the unit .

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

## **Handling and transport**

The console is supplied in a rugged cardboard box. 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 (e.g. for touring) we recommend that it is installed in a foam lined flight case. At all times avoid applying excessive force to any knobs, switches or connectors.

## **Power supplies and cabling**

Always make sure that the power supply has been set to the same source voltage as the mains supply.

Always use the power supply and power 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 console 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.

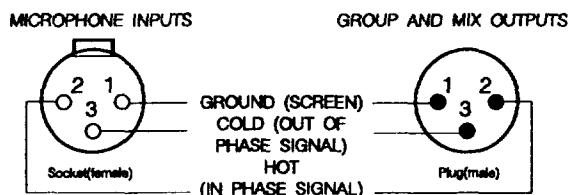
Always ensure that you use the correct type of power supply for the size of your console as shown below:

16 Channel Frame	CPS450 or CPS450B
24 & 32 Channel Frames	CPS650 or CPS650B
40 Channel Frame	CPS750 or CPS750B

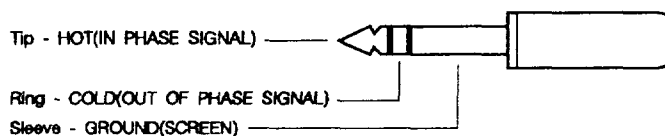
# Connections

## Wiring conventions

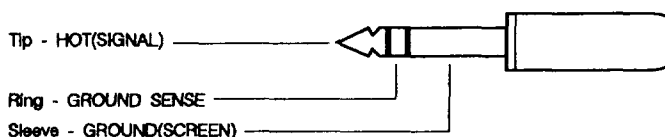
The standard Venue II console uses two different types of audio connector, 3 pin XLR (top diagram) and 1/4" three pole ('A' gauge or stereo) jacks. The latter are used in three different configurations, as shown below. The rear frame of the console has standard apertures fitted with blanking panels. Your Soundcraft dealer can supply a variety of mounting plates to fit these, with EDAC (ELCO) multiway connectors, together with looms to link them to the modules.



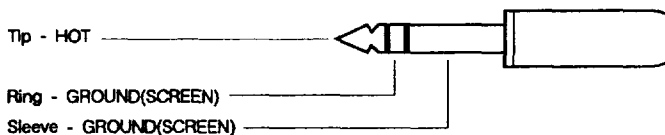
1/4" 'A' Gauge Stereo Jack Plug used as balanced input: line inputs and tape returns



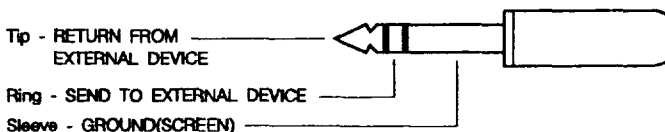
1/4" 'A' Gauge Stereo Jack Plug used as ground compensated output: auxiliary send outputs and control room monitor outputs



1/4" 'A' Gauge Stereo Jack Plug used as unbalanced output: direct outputs



1/4" 'A' Gauge Stereo Jack Plug used as insert send/return



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## 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 common mode DC, AC or RF voltages, as these will reduce the available signal range on the inputs. Note that 0dBu = 0.775V RMS.

The microphone input is designed for use with balanced low impedance (150 or 200 ohm) microphones.

**Caution!** DO NOT use unbalanced microphones or battery powered condenser microphones with the +48V phantom power switched on: degraded performance or damage to the microphone may result.

The sensitivity of the microphone input is variable from -2dBu to -70dBu (for +4dBu at the Stereo Mix outputs), and the maximum input level (balanced) is 20dB above the set sensitivity that is, with the gain control at minimum, the maximum input level is +18dBu. Although the microphone input can thus handle some line level signals, we don't recommend this, since the source may be unduly loaded by the low (2k $\Omega$ ) input impedance, or be damaged by the +48V phantom power.

The line input has a sensitivity variable between -20dBu and +10dBu, and can also handle a maximum input level up to 20dB above the set value. Note that the maximum input level for unbalanced inputs is 4 or 5dB less than that for balanced signals, so very high level unbalanced signals (e.g. loudspeaker outputs of power amplifiers) may cause distortion. The input impedance is approximately 20k $\Omega$ , and thus high impedance sources (e.g. electric guitars) may be loaded too heavily. Such sources are best fed through an external DI (Direct Inject) box to the microphone input.

The main outputs of the console (e.g. Stereo mix, group outputs, aux sends) have a nominal output level of +4dBu, and an impedance of 75ohms. The Stereo mix and Group outputs also have the facility to switch the operating level to -10dBV to allow easy interface to domestic and semi professional equipment. These outputs will deliver full level (+21dBu unbalanced, +27dBu balanced) into loads of greater than 600ohms. Secondary outputs, such as channel insert sends and channel direct outputs (all unbalanced) have a nominal output level of -2dBu and a slightly higher output impedance of 200ohms, and will only deliver the full output level of +21dBu into load impedances of greater than 5k $\Omega$ .



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# Installation

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# Installation

The Venue II is designed to offer ruggedness and compactness for touring applications, and to meet the exacting standards of fixed installations.

The diversity of live sound applications around the world is a great challenge for the designers of a top quality console such as the Venue II. While great care is taken during design to ensure that installations are as trouble-free as possible, the following guidelines should be noted:

- Avoid multiple earth connections, especially in a large sound reinforcement installation where power is distributed, and cable runs can be very long.
- Where possible ensure that all cable screens and other signal earths are connected to ground only at their source.
- Avoid installing the console close to thyristor dimmer racks or other heavy current electrical equipment.
- Keep audio cables separate from lighting and other power cables.
- Provide a separate mains power supply for audio equipment, and where possible install an independent earth for all audio and communications equipment.
- Always ensure that you use the correct type of power supply for the size of your console as shown below:

16 Channel Frame	CPS450 or CPS450B
24 & 32 Channel Frames	CPS650 or CPS650B
40 Channel Frame	CPS750 or CPS750B

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## **Console Illumination**

There is provision for two low voltage lamps on all four frame sizes. The BNC type sockets provide +12V at 330mA, and will power 12V Hi-Intensity (HI) lamps, or similar.

The sockets are wired as follows:

Pin	+12V
Body	Ground

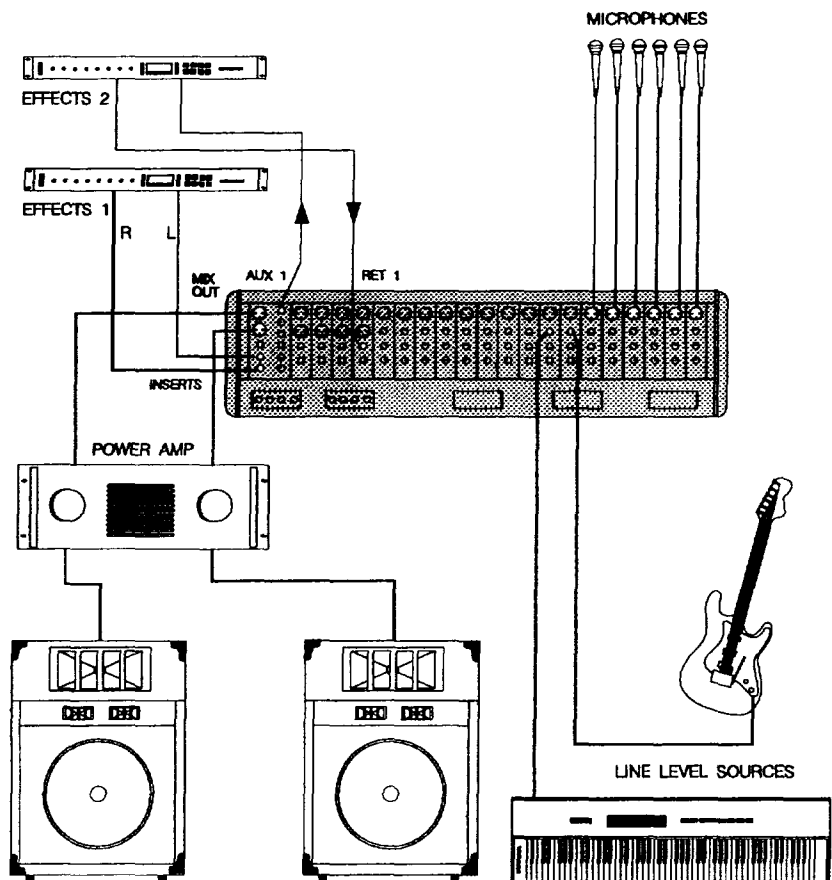
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## **Examples of use**

The diagrams opposite and overleaf show typical applications of the Venue II in small and large scale PA applications, and in a theatre installation. These examples are of course only an indication of the systems possible with the unique flexibility of the Venue II, which may be easily reconfigured to ideally suit your particular requirements.

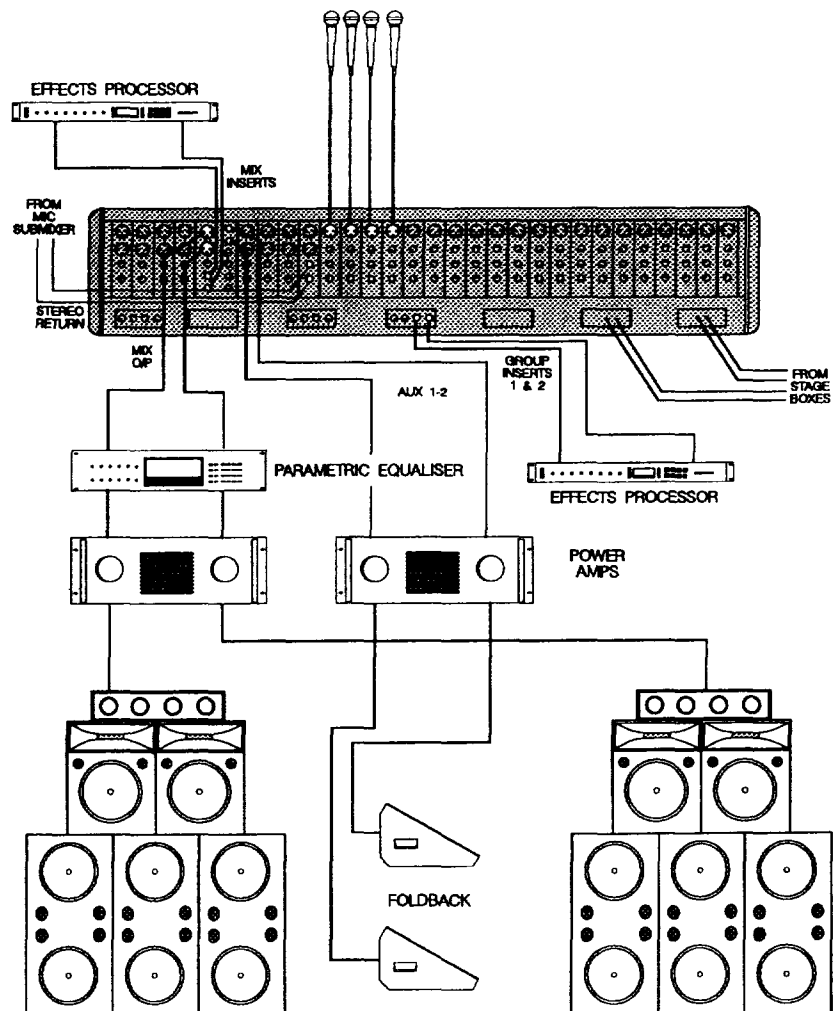
## Public Address

Use as the front-of-house console in a sound reinforcement system. Microphones covering drums, guitars and vocals are fed to the mic inputs of Mono Input modules. Keyboard and other line level sources are fed to line inputs, and stereo modules could be fitted in these positions as an alternative. The Stereo mix is fed to the main speakers, with a stereo effects unit available via the mix inserts. A separate effects unit is accessed via Aux 1, and returned to the console on one of the Dual Group/Stereo Return modules. Other Aux outputs may be used for foldback or other outboard equipment.



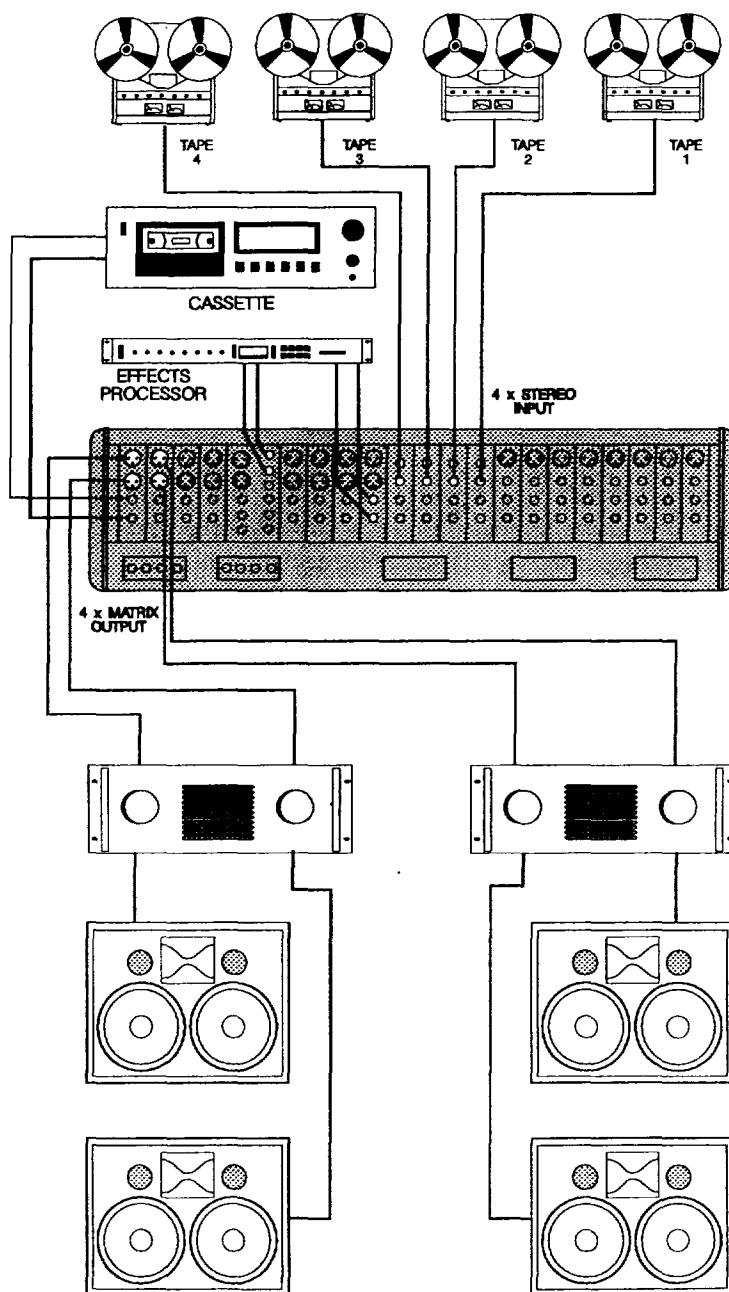
## Sound Reinforcement

The diagram below shows a typical configuration in a larger scale sound reinforcement application. The main speakers are fed from the stereo mix via a parametric equaliser, with an effects processor connected to the mix inserts. Aux 1 and 2 feed stage foldback, and the outputs from an additional submixer are brought into one of the Dual Group/Stereo Return modules. Four Dual Matrix modules are provided to feed side fill speakers or a centre cluster. The console is fitted with optional EDAC multicore connectors, to connect quickly and conveniently to stage microphone boxes or split feeds from another console.



## Theatre Sound

Theatre sound calls for the maximum flexibility from a console, and the Venue is ideally suited to this role. The configuration below shows a 16 channel frame fitted with 4 stereo modules handling 2 track tape machines, and four dual matrix modules feeding effects speakers. Typically there would be many more speakers required, ideally on individual mixer outputs, and this compact console provides 8 matrix outputs in addition to the normal mix L&R, 8 groups and 6 auxiliaries. A stereo cassette player feeds the external inputs of one of the matrix modules to provide the simplest possible source of house music. The output from an effects processor is fed back to the groups and mix via a stereo return module. Since the requirement for microphones is often limited in a theatre application, the stereo modules provide the maximum number of inputs in a compact console.



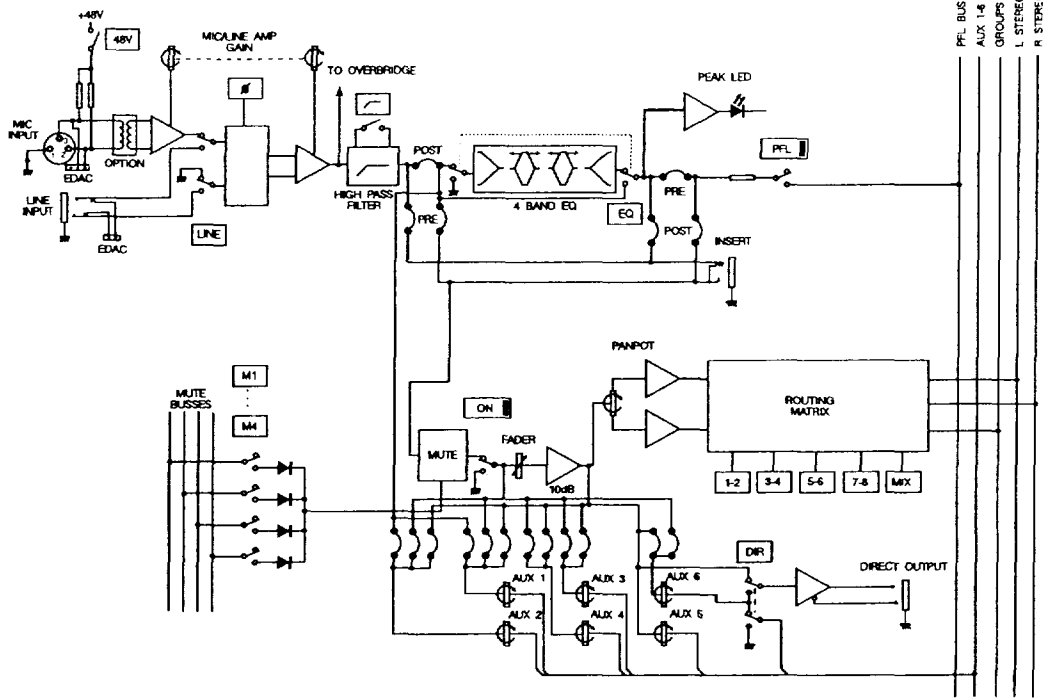
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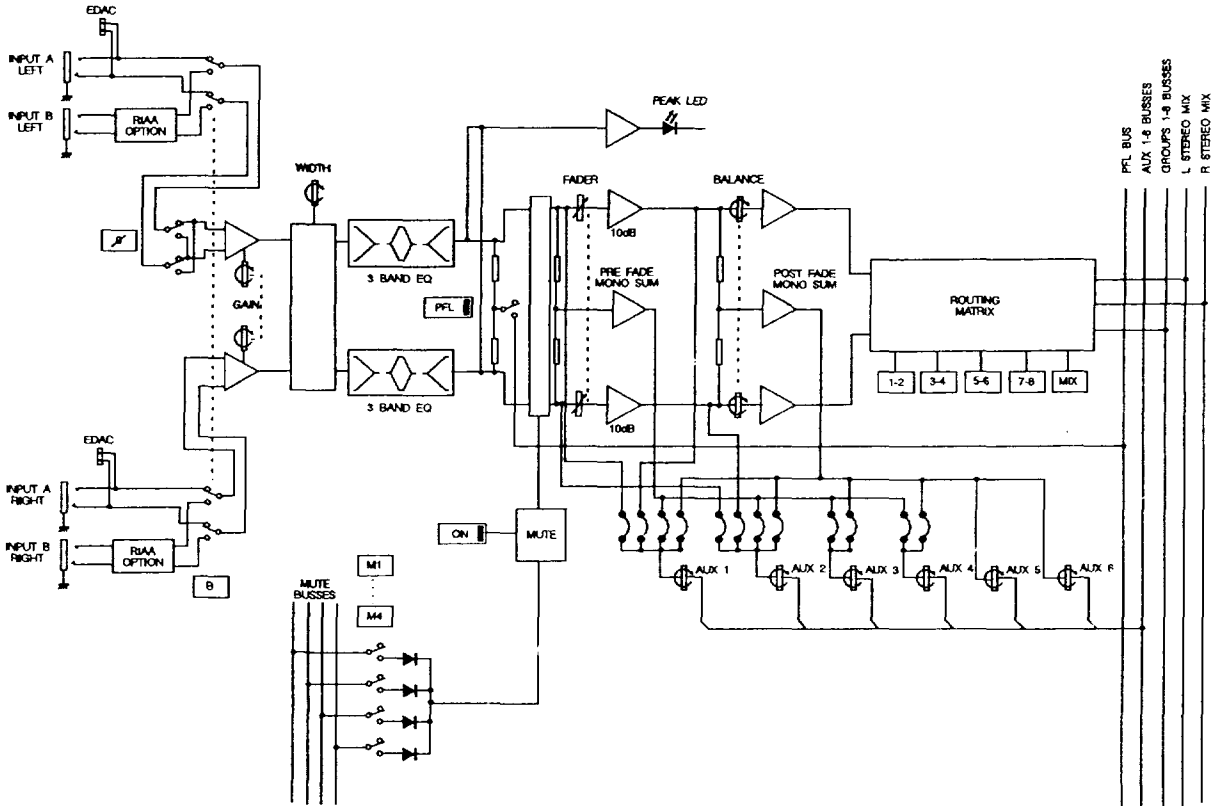
## **Module Block Diagrams**

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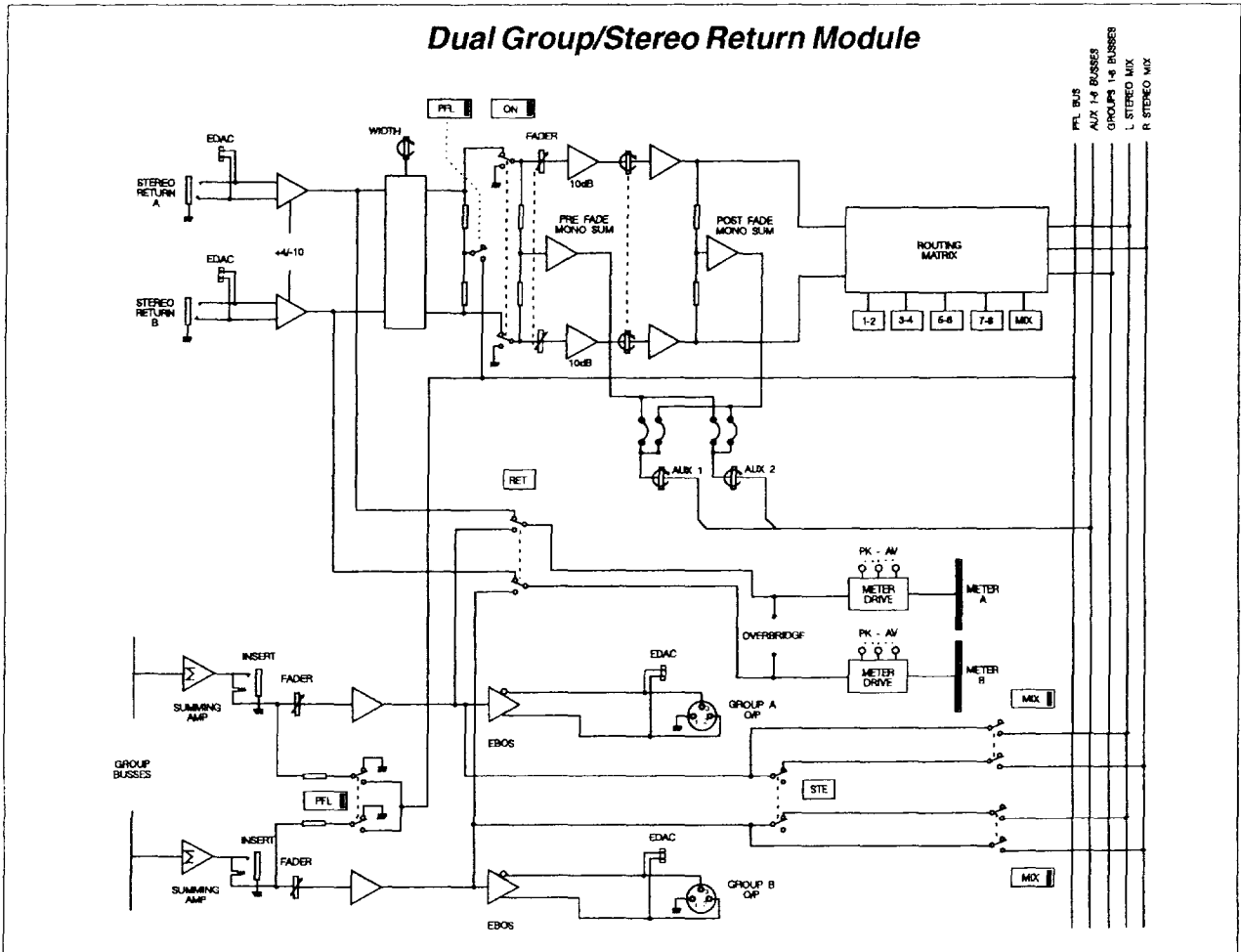
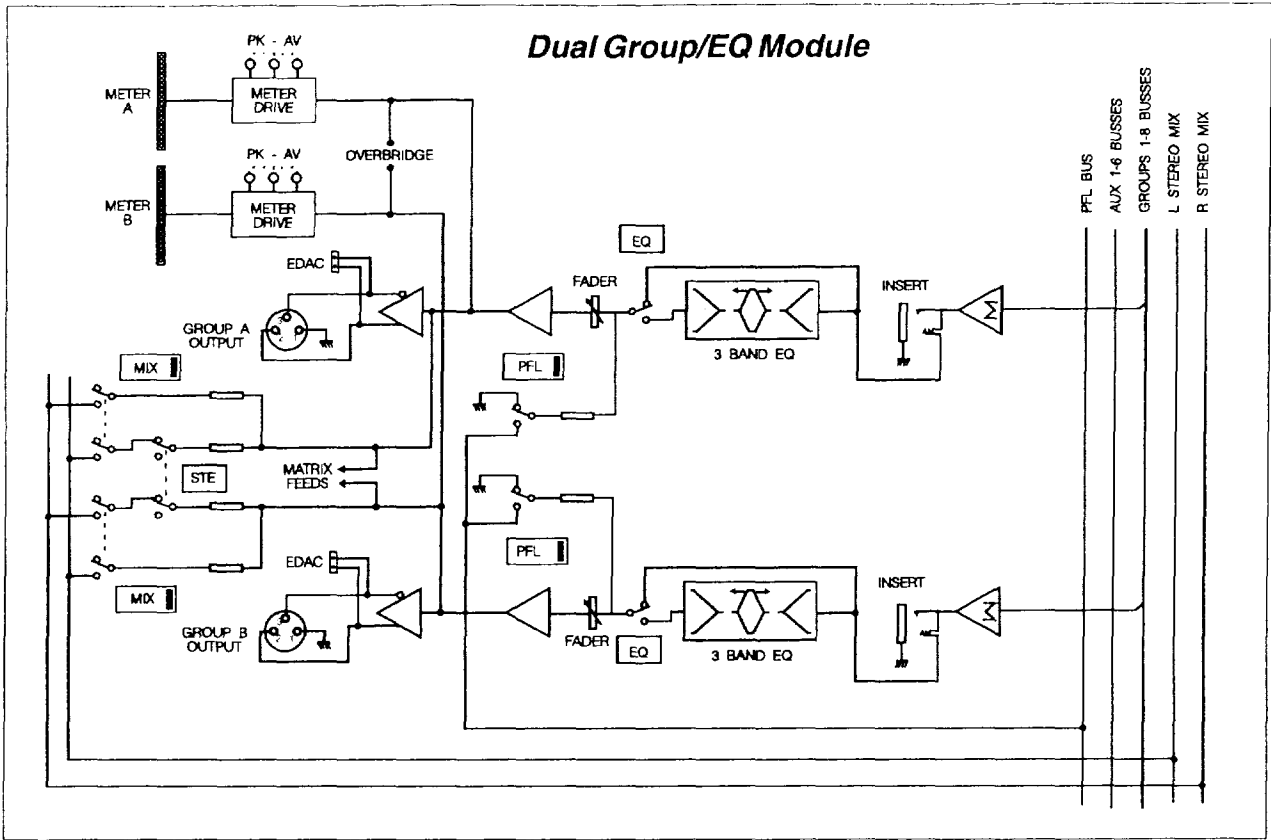
### Mono Input Module



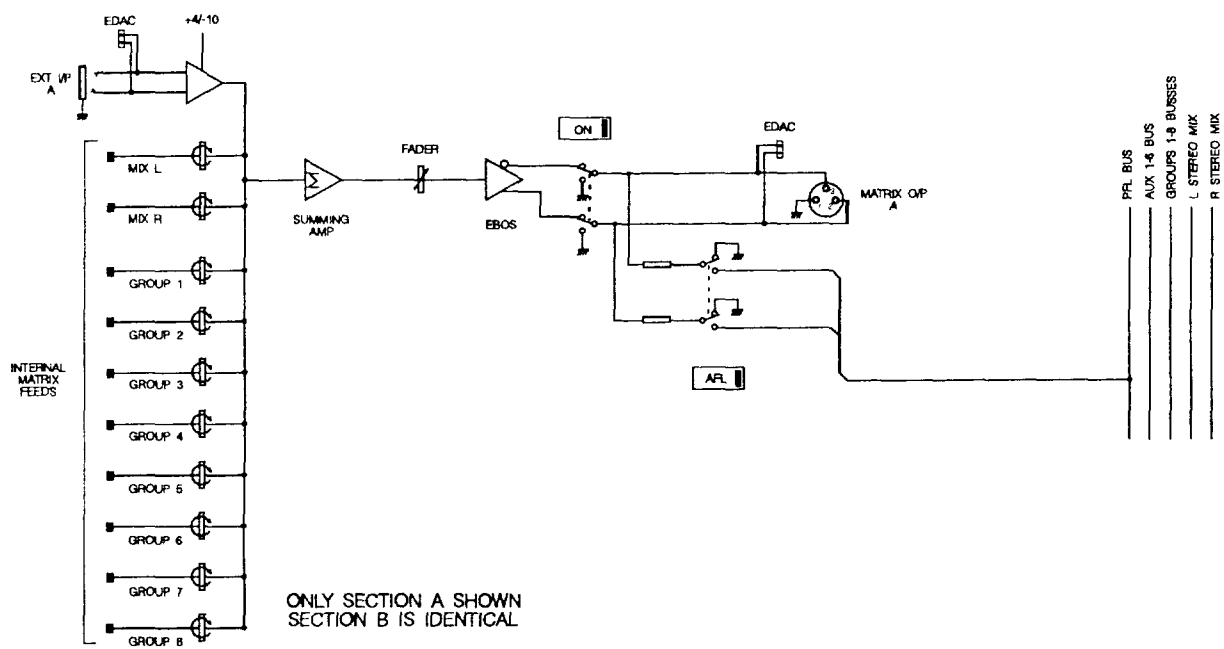
### Stereo Input Module



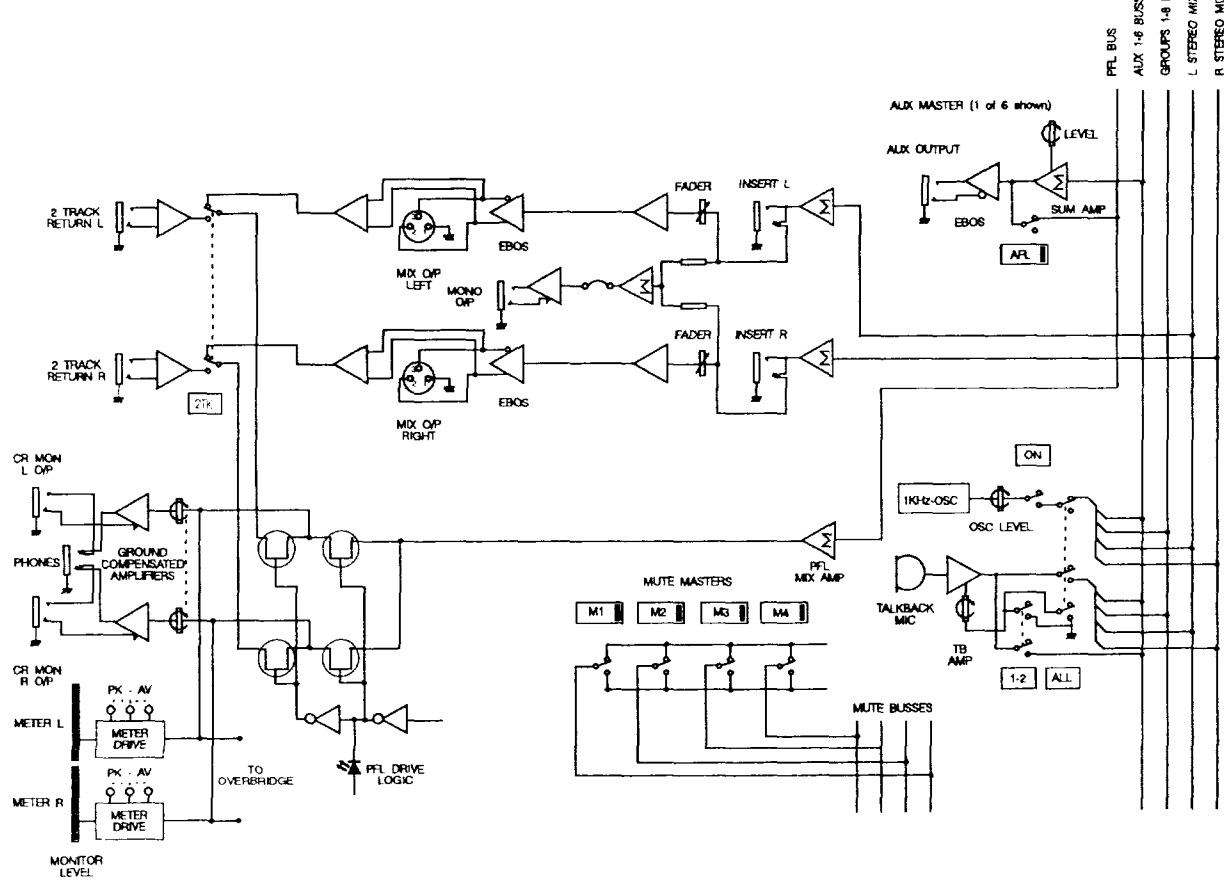




### Dual Matrix Module



### Master Module



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## **Mono Input Module**

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*Description*

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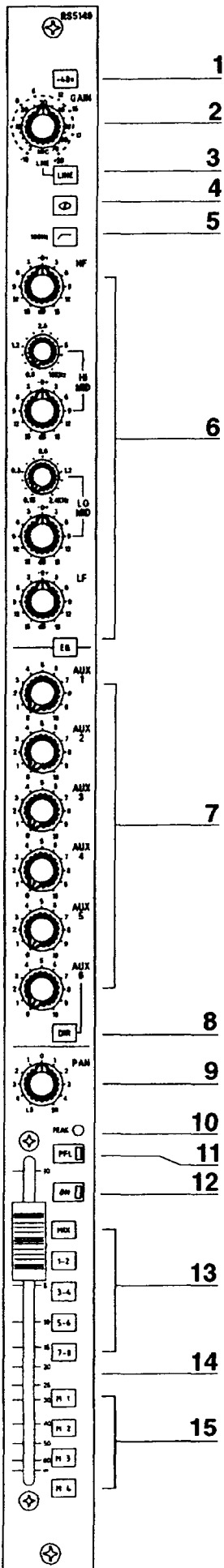
*Specifications*

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*and Operation*

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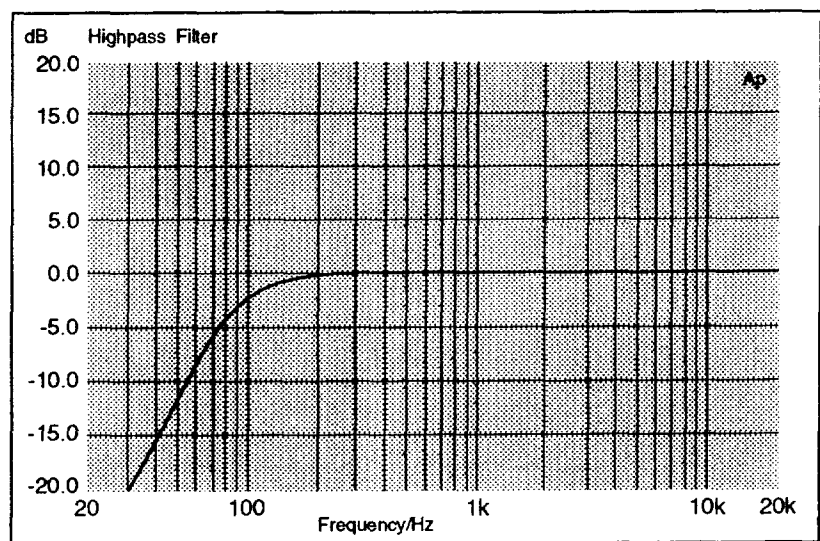
# Mono Input Module



## Channel Input

- 1 **+48V** switch applies 48V phantom power to the microphone input.
- 2 **GAIN** adjusts the sensitivity of both mic and Line inputs. Mic input sensitivity: -2dBu to -70dBu. Line input sensitivity: -20dBu to +10dBu.
- 3 **LINE** selects the line input to the channel.
- 4 **Ø (PHASE)** reverses the phase of the selected input.
- 5 **HI-PASS FILTER** inserts a 100Hz second order filter immediately after the input amplifier.

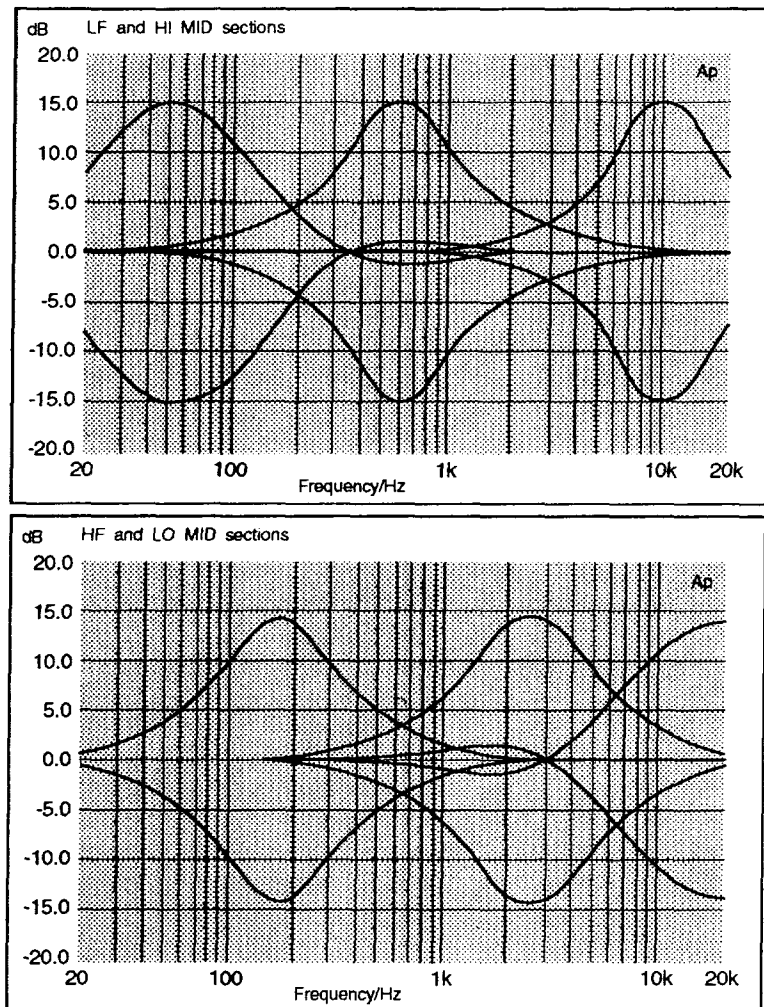
## Frequency Response Curves of the Hi-Pass Filter



## Equaliser

6 The **EQUALISER** is a 4-band semi-parametric. HF. +/- 15dB shelving at a fixed frequency of 12kHz. HI MID. +/- 15dB peaking between 0.6 - 10kHz.  $Q = 1.5$  LO MID. +/- 15dB peaking between 0.15 - 2.5kHz.  $Q = 1.5$  LF. +/- 15dB shelving at a fixed frequency of 60Hz, with 30Hz VLF rolloff. The cut/boost pots are centre detented, the centre position giving a flat response. EQ switches the equaliser into circuit.

## Frequency Response Curves of the Equaliser



### **Auxiliaries**

**7** Six **AUXILIARY SENDS** are provided: Aux sends 1 through 4 have their sources individually selectable by internal jumpers. 1 & 2 can be: pre-EQ, pre-fade, or post-fade. 3 & 4 are either pre- or post-fade. The factory fitted default is AUX 1 and 2 pre-fade, AUX 3 and 4 post-fade. Aux sends 5 is permanently sourced post-fade. Aux 6 may be selected as pre-fade or post-fade by repositioning an internal jumper.

### **Direct Output**

**8** **DIR** determines the source of the direct output signal. With the switch in the up position the direct output is post-fade at a fixed level, and the Aux 6 control feeds Aux 6 bus. Pressing **DIR** causes the direct output to be fed from the Aux 6 control, and the Aux 6 bus is disconnected from the module. The source of the Aux 6 control (and hence the direct output when **DIR** is pressed) is jumper selectable to be pre- or post-fade. The direct output signal is ground compensated.

## Routing

**9** PAN determines the position of the signal within the stereo image. In the centre position (detented) there is a 4.5dB level drop. Pan left feeds the signal to odd numbered busses, pan right to even busses. Panning fully left or right sends signal to only the left or right side respectively.

**13** Five ROUTING SWITCHES give access in pairs to MIX left and right busses and 8 group busses. The signal may be routed to an individual bus by using the relevant routing switches with the PAN control turned fully left or right.

## Channel Status

**10** The PEAK LED illuminates 7dB below clipping point, ie, it illuminates when a level of +14dBu is present within the module. It is sourced from the insert send.

**11** The illuminated PFL switch feeds the pre-fade signal into the monitor system, where it replaces the selected monitor source.

**12** The illuminated ON switch activates the signal to the pre- and post-fade auxiliaries, routing and direct output.

**14** The FADER is a 100mm Alps type, with 10dB gain.

**15** The MUTING SYSTEM allows the channel status to be controlled by four master mute busses, originating in the master module. Mute selection is made by four individual switches. The mute system has no effect when all switches are released.

The INSERT POINT is link selectable to be either pre- or post-EQ. The factory fitted default is post-EQ. Both the send and the return are unbalanced and at a level of -2dBu.

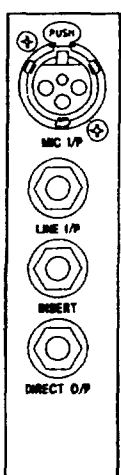
A DIRECT OUTPUT is provided. It is ground compensated at a level of -2dBu. See paragraph 8 on the previous page for a description of the sourcing and level control of the direct output.

The Microphone and Line inputs have provision for optional EDAC multicore interfacing. The signal from the Mic multicore connect in parallel to the XLR. The signal from the Line multicore enters the module via the break contacts of the line input jack.

The rear connector panel is integral to the module and houses all external interface connectors as shown on the left.

INPUT METERING is provided on an optional overbridge, and the monitored signal is the output of the mic/line input amplifier.

### Rear Connector Panel



#### Mic I/P Female XLR

Pin 1	Screen
Pin 2	Hot
Pin 3	Cold

#### Line Input 3 Pole Jack

Tip	Hot
Ring	Cold
Sleeve	Screen

#### Insert 3 Pole Jack

Tip	Return
Ring	Send
Sleeve	Screen

#### Direct Output 3 Pole Jack

Tip	Hot
Ring	Ground Sense
Sleeve	Screen (cold)

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## Specification

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### **MICROPHONE INPUT**

Electronically Balanced, (Transformer Optional)	
Input Impedance	>2k $\Omega$
Maximum I/P Level	+18dBu
Sensitivity Range	-2 to -70dBu
CMRR	>80dB at Max Gain. 1kHz
EIN 150R Source	<-127.5dBu at max gain

### **LINE INPUT**

Electronically balanced	
Input Impedance	>10k $\Omega$
Maximum I/P Level	>+27dBu
Sensitivity Range	-20 to +10dBu
CMRR	>40dB at 1kHz
EIN 40R Source	<-90dBu at unity gain

### **EQUALISER**

Boost/Cut Range	+/-15dB
Break Frequencies	HF 12kHz Shelving, 2nd Order HI MID 0.6 - 10kHz Peaking. Q=1.5 LO Mid 0.15 - 2.5kHz Peaking. Q=1.5 LF 60Hz 2nd Order Shelf with 30Hz VLF Rolloff
Highpass Filter	-3dB at 100Hz, 2nd Order

### **GENERAL**

Insert Send Level	-2dBu, Unbalanced
Insert Send Max O/P	+21dBu into 2k $\Omega$
Direct Output Level	-2dBu, Ground compensated
Direct Output Max O/P	+21dBu into 600 $\Omega$
Mute Off Ratio	>100dB @ 1kHz, 90dB @ 10kHz
Fader Off Ratio	>80dB @ 1kHz, 80dB @ 10kHz Reference 0dB
Panpot Cross talk	<-85dB @ 1kHz, 80dB @ 10kHz
THD	<0.005% @ 1kHz <0.015% @ 10kHz

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## **Stereo Input Module**

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*Description*

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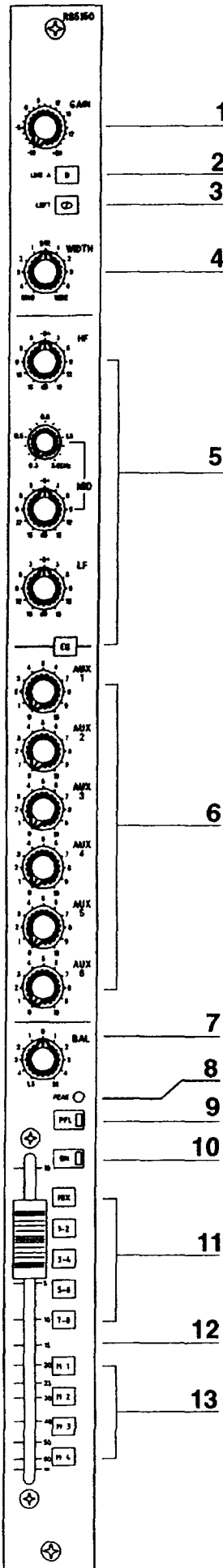
*Specifications*

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*and Operation*

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# Stereo Input Module



## Channel Input

**1** **GAIN** adjusts the sensitivity of the line inputs of both channels from -20dBu to +10dBu.

**2** **B** selects the alternative B inputs which may be fitted with an RIAA preamp option.

**3** **Ø LEFT** reverses the phase of the left channel of the selected input.

**4** **WIDTH** is a continuously variable control which allows the width of the stereo image to be varied from mono (ACW) through stereo (centre detent) to phase enhanced wide stereo (CW).

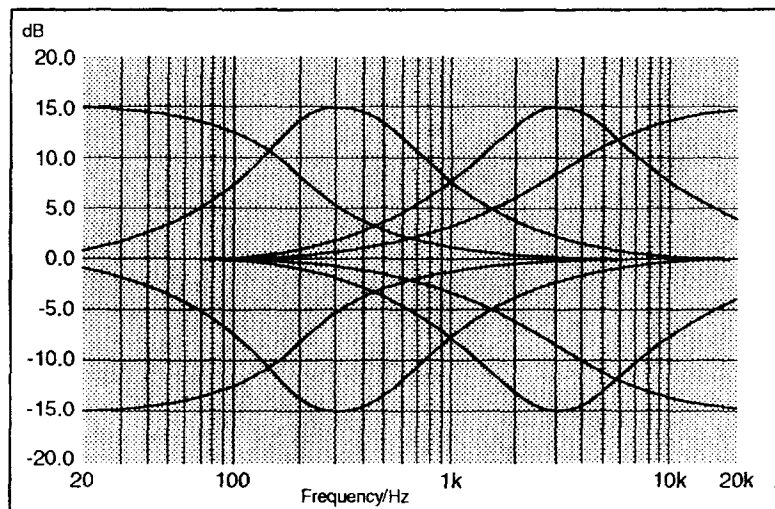
## Equaliser

**5** The EQ section is 3-band semi-parametric. HF. +/- 15dB shelving at a fixed frequency of 12kHz. MID. +/- 15dB peaking between 0.3 - 3kHz. Q = 1.0 minimum. LF. +/- 15dB shelving at a fixed frequency of 60Hz. The cut/boost pots are centre detented, the centre position giving a flat response. EQ switches the equaliser into circuit.

## Auxiliaries

**6** Six **AUXILIARY SENDS** are provided: Auxiliary sends 1 and 2 are internally individually link selectable for pre or post fade, and mono or stereo operation: when stereo is selected, the left channel feeds AUX 1, and the right AUX 2. The factory default is AUX 1 and 2 pre fade, mono. AUX 3 through 6 are permanently sourced mono, with AUX 3 and 4 link selectable to be pre fade or post fade (default), whilst AUX 5 and 6 are permanently post fade.

## Frequency Response Curves of the Equaliser



## Routing

**7** The **BAL** (balance) control determines the relative level of the L and R signals. In the centre position (detented) its gain is unity. Turning it fully CW increases the right signal by +4.5dB, and totally kills the left signal. Full ACW rotation has the opposite effect. Balance left biases the signal to odd numbered busses, balance right to even busses.

**11** Five **ROUTING SWITCHES** give access in pairs to MIX left and right busses and 8 group busses.

## Channel Status

**8** The **PEAK LED** illuminates 7dB below clipping point, ie, it illuminates when a level of +14dBu is present within the module. It is sourced from the post EQ signal.

**9** The illuminated **PFL** switch feeds the pre-fade signal into the monitor system, where it replaces the selected monitor source.

**10** The illuminated **ON** switch activates the signal to the pre- and post-fade auxiliaries and routing.

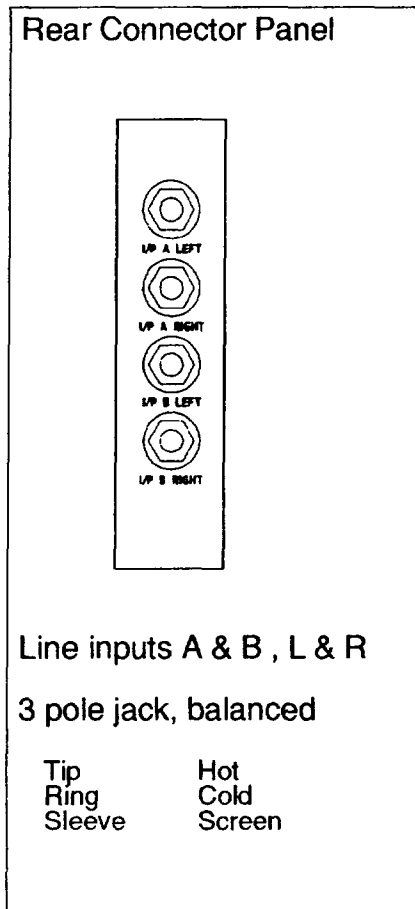
**13** The **MUTING SYSTEM** allows the channel status to be controlled by four master mute busses, originating in the master module. Mute selection is made by four individual switches. The mute system has no effect on the channel when all switches are released.

**12** The **FADER** is a stereo 100mm Alps type, with 10dB gain.

The inputs are electronically balanced. Transformer input balancing is not available on this module.

Line Input A has provision for optional EDAC multicore interfacing. The signal from the Line multicore parallels the input. When the line multicore option is not fitted, the break contacts are shorted together via a link.

The rear connector panel is integral to the module and houses the 4 external interface connectors as shown on the left.



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## Specification

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### **LINE INPUTS**

Electronically Balanced	
Input Impedance	>10k $\Omega$
Maximum Input Level	+27dBu
Sensitivity Range	-20 to +10dBu
CMRR	>40dB @ 1kHz

### **EQUALISATION**

Boost/Cut Range	+/-15dB
Break Frequencies	HF 12kHz Shelving MF 0.3 - 3kHz Peaking, Q=1 LF 60Hz Shelving

### **GENERAL**

Mute Off Ratio	>95dB @ 1kHz, 90dB @ 10kHz
Fader Off Ratio	>80dB @ 1kHz, 80dB @ 10kHz
Balance Pot Off Ratio	<-85dB @ 1kHz, 80dB @ 10kHz
L/R Crosstalk	<-60dB @ 1kHz, 10kHz
Width Control at Centre	
THD	<0.005% @ 1kHz <0.02% @ 10kHz

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## Dual Group/EQ Module

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*Description*

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*Specifications*

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*and Operation*

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# Dual Group/EQ Module

This output module provides simple subgrouping facilities with a 3 band semi-parametric EQ on each group.

## Equaliser

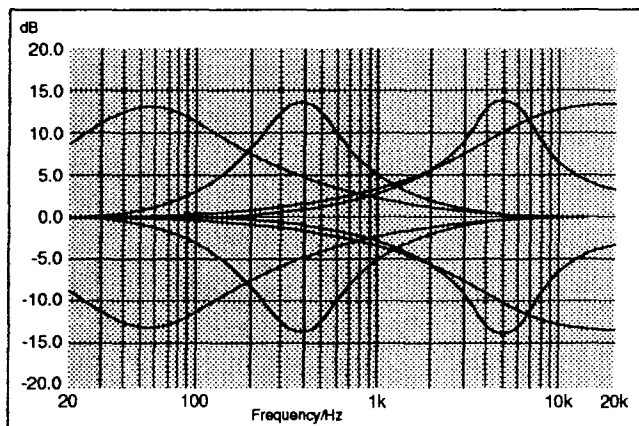
**1 & 2** The EQ section is a three band design, giving shelving HF and LF controls with frequencies of 12kHz and 60Hz, together with a MID section that operates from 250Hz to 4kHz. The LF section also has 30Hz VLF rolloff.

Cut and boost on all sections is +/-15dB maximum.

The upper section controls the odd numbered group, and the lower section the even numbered group.

The EQ is put into the signal paths by the EQ switches.

## Frequency Response Curves of the Equaliser

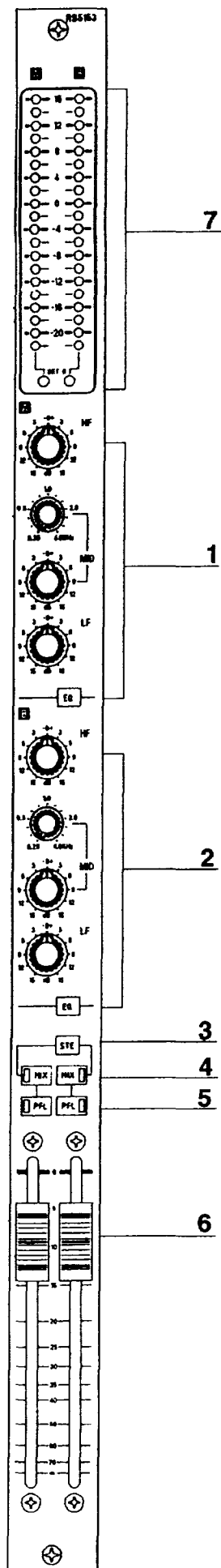


## Group output.

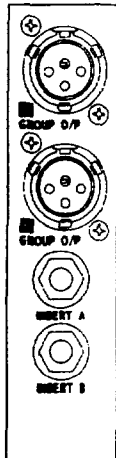
The group busses are fed to single ended low noise virtual earth summing amplifiers via movable 0.1" links to select the position of the particular module in the console. The summing amplifier outputs are at a nominal level of -2dBu, and feed the insert sends on the rear panel: the insert return feeds the EQ and then the group faders.

**3** When the STE switch is activated, the group signals are fed to the stereo mix as a stereo pair, odd groups routing to left, even to right.

**4** The buffered post fade signals can be routed individually in mono at unity gain to the stereo mix bus by the illuminated MIX switches.



## Rear Connector Panel



### Line Outputs Male XLR

Pin 1	Screen
Pin 2	Hot
Pin 3	Cold

### Inserts 3 pole jacks

Tip	Return
Ring	Send
Sleeve	Screen

**5** The pre fade group signals are accessed by individual illuminated **PFL** switches.

**6** The **FADERS** are 100mm Alps types, with unity gain (0dB) at the top of their travel.

**7** The 20 segment LED bargraph **METERS** read the group outputs and are link selectable for a peak or average response.

The post fade group signals are electronically balanced and fed to the rear panel XLR connectors: the nominal level at these connectors is +4dBu.

The group outputs have provision for optional EDAC multicore interfacing.

The rear connector panel is integral to the module and houses the 4 external interface connectors as shown,

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## Specification

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### **GROUP OUTPUT**

Electronically Balanced	
Insert Send Nominal Level	-2dB
Nominal Output Level	+4dBu
Maximum Output Level	>+26dBu into 600Ω
Output Impedance	75Ω
Group - Group Crosstalk	
Same Module	<-90dB @ 1kHz <-85dB @ 10kHz
Adjacent Module	<-105dB @ 1kHz <-95dB @ 10kHz
Fader Off Ratio	>85dB @ 1kHz >80dB @ 10kHz
Mix Switch Off Ratio	>100dB @ 1kHz >95dB @ 10kHz
THD	<0.005% @ 1kHz <0.010% @ 10kHz

### **EQUALISATION**

Boost/Cut Range	+/-15dB
Break Frequencies	HF 12kHz Shelving MF 0.25 - 4kHz Peaking, Q=1.5 LF 60Hz Shelving with 30Hz VLF Rolloff



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## **Dual Group/Stereo Return Module**

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*Description*

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*Specifications*

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*and Operation*

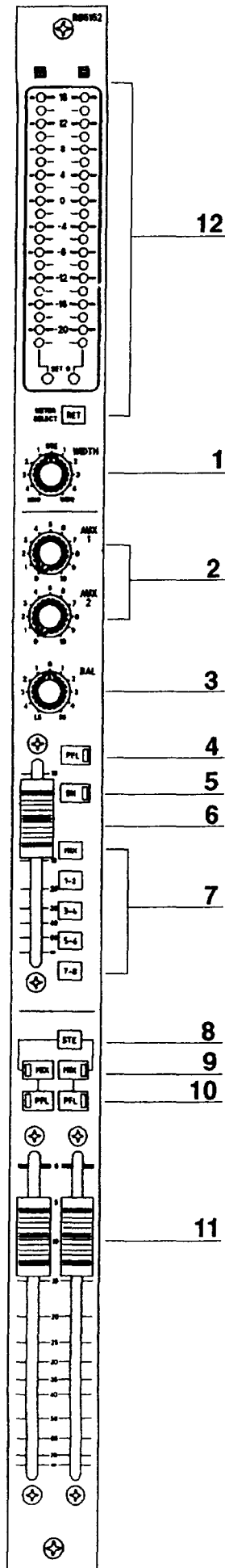
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# Dual Group/Stereo Return Module

Functionally this module comprises two separate parts: the dual group output and the stereo effects return.

## Stereo return.

The Left and Right line inputs are accessed by 1/4" stereo jacks on the rear connector panel. These inputs are buffered by a standard line input stage, which has a nominal sensitivity of +4dBu, switchable by a rear panel switch to -10dBV. The switch has physical protection against accidental operation.



**1** The **WIDTH** control allows continually variable control over the **WIDTH** of the stereo image from mono (ACW) through normal stereo (centre detent) to phase enhanced wide stereo (CW).

**2** Individual summed mono sends to auxiliary busses 1 and 2 are provided through the rotary controls **AUX 1** and **AUX 2**. These are shipped as pre-fade, but may be individually selectable by internal jumpers to be post fade.

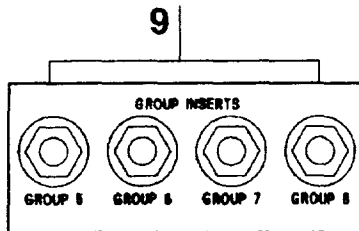
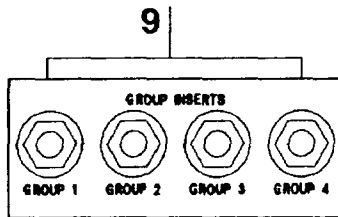
**3** The **BALANCE** control trims the level of the signal being fed to the routing switches. In the centre position the gain of the balance control is unity. Turning it fully CW increases the right signal by +4.5dB, and totally kills the left signal. Full ACW rotation has the opposite effect. Balance left biases the signal to odd numbered busses, balance right to even busses.

**4** The illuminated **PFL** switch allows monitoring of a mono sum of the signal.

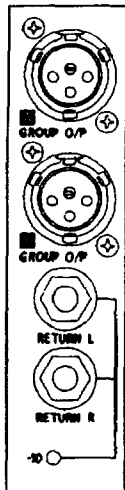
**5** The illuminated **ON** switch enables the signal to be routed to all the outputs (Group busses and Mix) of the return.

**6** The 60mm throw Alps **FADER** has a gain of +10dB at the top of its travel. It controls the level fed to the centre detented balance control which in turn feeds the routing switches. These give access to all group busses and the stereo mix bus.

## Insert Panels



## Rear Connector Panel



## Line Outputs Male XLR

Pin 1	Screen
Pin 2	Hot
Pin 3	Cold

## Stereo Line Returns

### 3 pole Jack, balanced

Tip	Hot
Ring	Cold
Sleeve	Screen

## Group Insert 3 pole jack

Tip	Return
Ring	Send
Sleeve	Screen

## Group output.

The group busses are fed to single ended low noise virtual earth summing amplifiers via 0.1" movable links to select the position of the particular module in the console. The summing amplifier outputs are at a nominal level of -2dBu, and feed the group faders via the insert. An internal switch selects the pair of inserts that the module feeds (1 & 2, 3 & 4).

## Routing

**8 & 9** The post fade signals can be routed individually as mono signals at unity gain to the stereo mix bus by the illuminated **MIX** switches. If the **STE** switch is depressed, the group signals are fed to the stereo mix as stereo signals, odd groups routing to left, even to right.

The post fade group signals are also buffered, electronically balanced and fed to the rear panel XLR connectors: the nominal level at these connectors is +4dBu.

**10** The pre fade group signals are accessed by individual illuminated **PFL** switches.

**11** The group **FADERS** are 100mm Alps types, with unity gain (0dB) at the top of their travel.

## Metering

**12** The 20 segment LED bargraph **METERS** normally read the group outputs and are link selectable for a peak or average response. Selecting the **RET** switch allows the stereo return signal to be metered.

The insert jacks are located in rear aperture panels.

The rear connector panel is integral to the module and houses the stereo return level switch and the 4 external interface connectors. The returns and group outputs have provision for optional EDAC multicore interfacing. The signals from the Line multicore parallel the return inputs.

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## Specification

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### **GROUP OUTPUT**

Electronically Balanced  
Insert Send Nominal Level -2dBu  
Nominal Output Level +4dBu  
Maximum Output Level >+26dBu into 600 $\Omega$   
Output Impedance 75 $\Omega$

Group - Group Crosstalk:  
Same Module <-90dB @ 1kHz  
<-85dB @ 10kHz  
Adjacent Module <-105dB @ 1kHz  
<-95dB @ 10kHz  
Fader Off Ratio >85dB @ 1kHz  
>80dB @ 10kHz  
Mix Switch Off Ratio >-100dB @ 1kHz  
>-95dB @ 10kHz  
THD 0.003% @ 1kHz  
0.005% @ 10kHz

### **STEREO RETURN**

Electronically balanced  
Input Impedance 10k $\Omega$   
Nominal Input Level +4dBu/-10dBV, Switchable  
Mute Off Ratio >95dB @ 1kHz  
>90dB @ 10kHz  
Fader Off Ratio >75dB @ 1kHz, 10kHz  
Balance Pot Off Ratio >70dB @ 1kHz, 10kHz  
L/R Crosstalk,  
Width Control at Centre <-60dB @ 1kHz, 10kHz  
THD 0.003% @ 1kHz  
0.007% @ 10kHz

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## Dual Matrix Module

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*Description*

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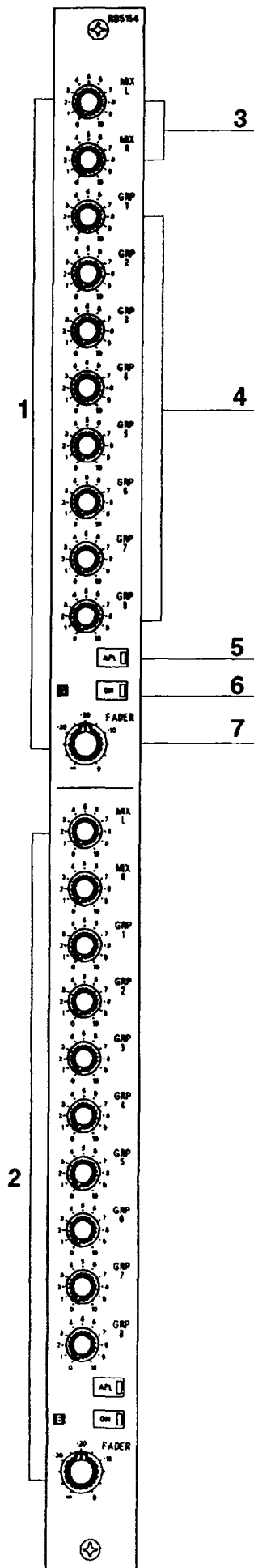
*Specifications*

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*and Operation*

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# Dual Matrix Module



## Module Input

**1 & 2** The module contains two functionally identical receive matrix sections designated A (upper) and B (lower). Each dual matrix output module allows the creation of two additional output mixes from the signals present at the group and mix outputs.

The MIX L and R signals enter the module via a 20 way ribbon cable that runs from the master rearconn via the masters to the group output modules. The group signals enter via a 10 way ribbon cable that connects to all group and matrix modules. All internal inputs are at a level of -2dBu, and all the matrix level controls have a gain of unity when fully clockwise. The matrix summing amplifiers have a gain of -6dB, which is made up after the fader, to optimise fader headroom.

The External Input is balanced. Its sensitivity is switchable between +4dBu and -10dBV. The switch is located on the rear panel and affects both external inputs. It has physical protection against accidental operation. Each input is summed into the matrix mix at fixed (unity re. the output) gain. The External inputs can be used for feeding sub-mixes directly into the matrix.

**3** The left and right stereo mix signals are summed into the matrix mix via the MIX L and R level controls.

**4** The eight GROUP LEVEL controls set the level of each group sent to the matrix mix.

**5** The AFL switch allows each signal to be monitored.

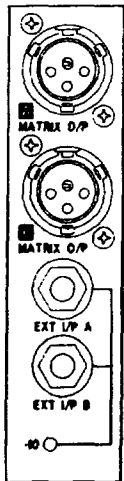
**6** The post fade signal is buffered and balanced before being output via the ON switch to the rear panel XLR sockets at a nominal level of +4dBu.

**7** The output level of each matrix mix is controlled by a rotary FADER, with a gain of 0dB when rotated fully CW.

The rear connector panel is integral to the module and houses the external interface connectors. The External Inputs have provision for optional EDAC multicore interfacing. The signal from the Line multicore can either parallel the external input or enter the module via the break contacts of the external input jack. When the line multicore option is not fitted, the break contacts are shorted together via a link.

Dual Matrix modules will normally be fitted on the far right-hand side of the frame.

## Rear Connector Panel



Matrix Outputs Male XLR,  
balanced

Pin 1	Screen
Pin 2	Hot
Pin 3	Cold

External Inputs 3 pole jack,  
balanced

Tip	Hot
Ring	Cold
Sleeve	Screen

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## Specification

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### **Matrix Output**

Electronically Balanced	
Nominal Output Level	+4dBu
Maximum Output Level	>+26dBu into 600 $\Omega$
Output Impedance	75 $\Omega$
A - B Crosstalk	<-100dB @ 1kHz
	<-95dB @ 10kHz
Fader Off Ratio	>90dB @ 1kHz, 10kHz
ON Switch Off Ratio	>100dB @ 1kHz, 10kHz
THD (Ext In to Matrix Out)	0.003% @ 1kHz
	0.005% @ 10kHz

### **External Inputs**

Input Impedance	10k $\Omega$
Nominal Input Level	+4dBu/-10dBV Switchable
Max Input Level	+21dB Above Nominal
CMRR	> 40dB @ 1kHz



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## **Master Module**

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*Description*

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*Specifications*

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*and Operation*

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# Master Module

## Auxiliaries

**1** The **AUXILIARY SEND MASTER** level controls set the output level of the auxiliary send mixes: the output level can be conveniently monitored using the aux send AFL switches. Optimum noise performance will be obtained with the send controls on the input channels turned up far enough to give a peak output level (metered using the aux send AFL switch) of +16 with the output level control at unity gain (7 on the scale). The output level should then be turned down to suit the input level of the device the send is driving.

## Master Outputs

**2** **INSERT** points are provided in the stereo mix signal path to enable the insertion of external processing devices in the signal path.

**3** The master output **FADERS** control the level of the stereo mix output. In order to preserve headroom, they should normally be run in the top 10dB of their range. If the stereo output is feeding a device which requires a lower input level (e.g. a domestic tape recorder), the reference level of the output and 2-track return level should be changed using the internal switch: see the Venue II technical manual.

A mono sum of the stereo mix signal, taken before the main faders, is available on the rear connector panel.

## Monitoring

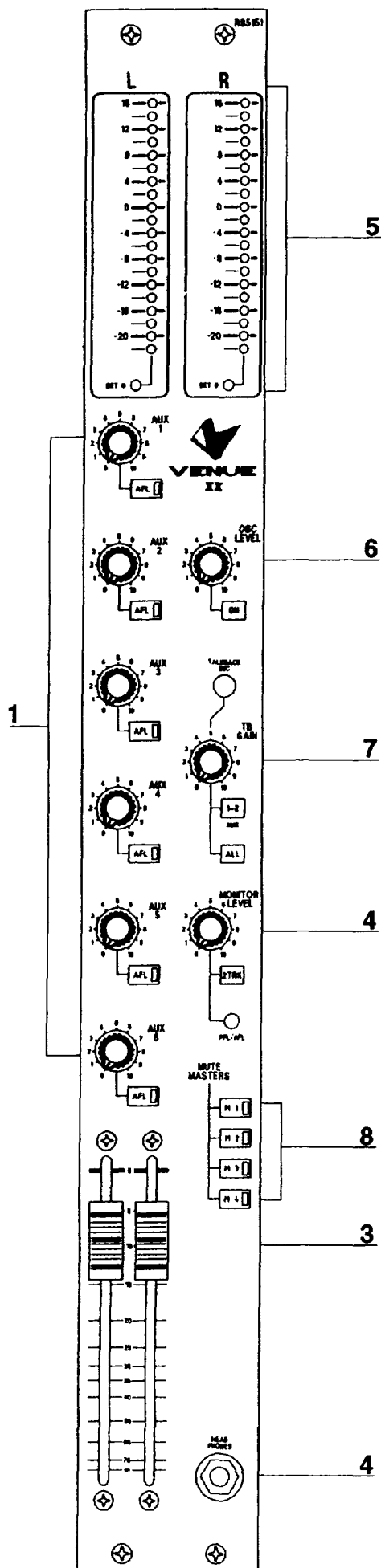
**4** Provision is made to monitor the stereo mix output, the PFL signal and the 2 track return (see Ancillary Connector Panel). The **CR MON** jacks on this panel are available to drive on external power amplifier/loudspeakers, alternatively stereo **HEADPHONES** can be plugged into the front panel jack: this will mute the CR MON outputs. The level is set by the **MONITOR LEVEL** control. Selection of the **2TRK** switch routes the 2 track tape return inputs to the monitors. Selecting a **PFL** switch on any input will automatically switch the monitoring to the PFL signal, overriding the Mix/2 track selection.

## Output Meters

**5** The stereo output **METERS** automatically follow the monitor selection of mix/2 track/PFL, though the meter reading is independent of the **MONITOR LEVEL**. The meter reading is relative to the operating level selected (see 3 above).

## Oscillator

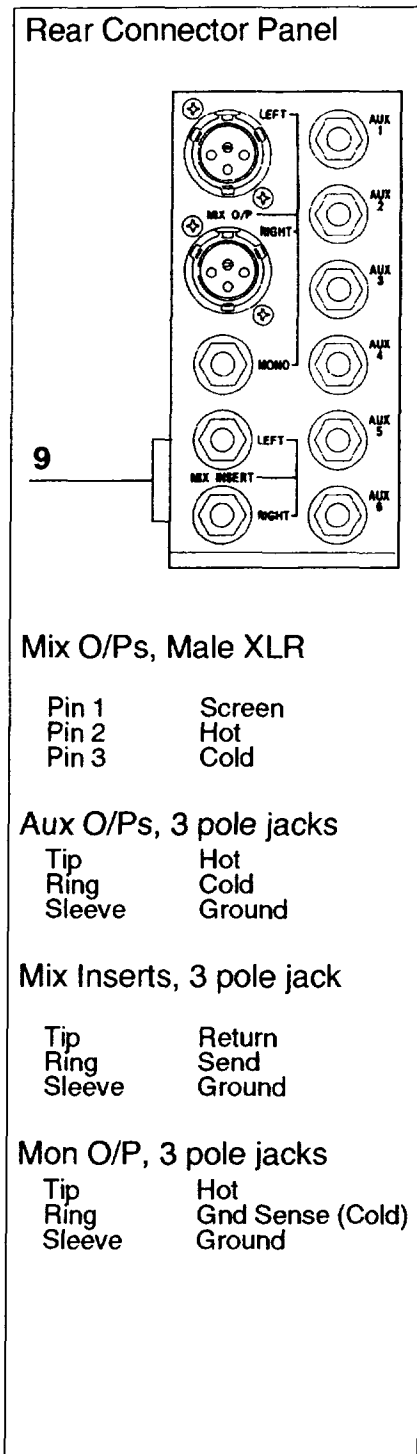
**6** A 1kHz **OSCILLATOR** is provided, which feeds a sine wave output of up to +16dBu to all groups, the stereo mix and aux buses, at a level set by the **OSC LEVEL** control. The oscillator is enabled by the **ON** switch, and is overridden by the selection of the talkback switch.



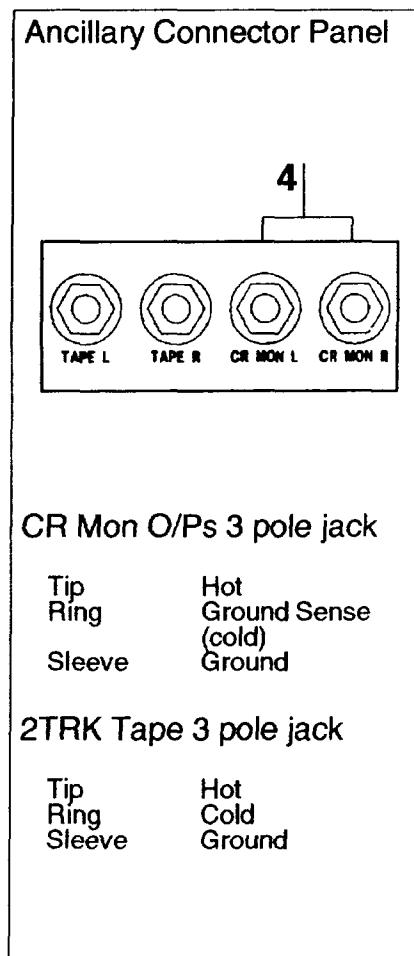
## Talkback

7 Talkback can be routed to either aux send 1 and 2 (1-2 switch), or to all buses (ALL switch). An integral mic is provided, flush mounted behind the front panel, with an associated gain control **TB GAIN**. In order to avoid acoustic feedback, the CR monitor outputs are attenuated ("Dimmed") by approximately 20dB when talkback to Aux 1-2 is selected, and muted when talkback to ALL is selected.

8 The **MUTING SYSTEM** allows the input channel status to be controlled by four Master Mute busses. Operation of any of the master buttons mutes any input channels selected to the corresponding mute buss.



Insert points are provided in the stereo mix path to enable the insertion of external processing devices in the signal path.



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## Specification

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### **Auxiliary Send Outputs**

Electronically Balanced	
Nominal Level	+4dBu
Maximum Output Level	+27dBu into 600 $\Omega$
Output Impedance	75 $\Omega$
Master Gain Control Range	+10...-85dB
Aux-Aux crosstalk	<-80dBu at 1kHz
THD	0.003% at 1kHz 0.006% at 10kHz

### **Mix L&R Outputs**

Electronically Balanced	
Insert Send Nom. Level (Unbal)	-2dBu
Insert Send Maximum Output	+21dBu into 1k $\Omega$
Insert Return Impedance	10k $\Omega$
Master Fader Rejection	>80dB at 1kHz
Stereo Mix Output Nom. Level	+4dBu/-10dBV Selectable
Stereo Mix Maximum Output	+27dBu into 600 $\Omega$
Output Impedance	75 $\Omega$
L/R Crosstalk	<-80dB at 1kHz
THD	0.003% at 1kHz 0.006% at 10kHz
Mono Output Level (Unbal)	+1dBu
Mono Maximum Output Level	+21dBu into 600 $\Omega$

### **Monitor Outputs and Switching**

CR Mon Nominal Output Level	+4dBu
Maximum Output Level	+20dBu into 5k $\Omega$
Output Impedance	<75 $\Omega$
Phones Nominal Output Level	+4dBu
Phones Output Maximum Level	+20dBu into 600 $\Omega$ +14dBu into 50 $\Omega$ 0dBu into 8 $\Omega$
2-Track Return Nominal Level	+4dBu/-10dBV Switchable
2-Track Return Maximum Level	+25dBu
2-Track Return to Mix Crosstalk	<-85dB at 1kHz

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## Specification

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### ***Oscillator***

Max Level at Group/Mix O/P	+16dBu
Frequency 1kHz	+/-10%
Distortion	<1% THD

### ***Meter***

20 Segment LED Bargraph	
Response	Peak or Average Reading
Rise Time to -1dB	150msec (average)
	4msec (Peak)
Decay Time to -20dB	250msec (Average)
	1.2sec (Peak)
Accuracy Relative to 0dB	+/-1dB
Calibration Range	0dB+-2dBu...+20dBu (Output Nom. Level = +4dBu)

## Typical Performance Figures

Typical Performance Figures Measured On 32 Channel Console.  
For details of measurement and further specs., refer to your dealer

<b>TOTAL HARMONIC DISTORTION</b>	Measured @ +20dBu, 30kHz Bandwidth, Unweighted	
	Group Output	1kHz:0.003% 10kHz:0.007%
	Aux Output	1kHz:0.003% 10kHz:0.006%
	Input to Line Output	1kHz:0.005% 10kHz:0.015%
	Line Input to Any Output	1kHz:0.005% 10kHz:0.02%
	Oscillator to Group Output @+16dBu	1kHz: <1%
<b>CROSSTALK</b>	Channel Muting	>100dB Measured @ 1kHz
	Maximum Fader Attenuation	>80dB
	Panpot Isolation (Active Pan)	>85dB
	Routing (Channel to Groups or Mix)	>95dB
	Maximum Aux Send Attenuation	>85dB
	Mic. Input @ Max Gain, CMRR	>80dB
	Line Input @ Unity Gain, CMRR	>40dB
<b>NOISE</b>	Measured 22Hz to 22kHz Bandwidth, Average reading, Unweighted	
	Mic. Input @ Max Gain, EIN with 200 $\Omega$ Source	-127.5dBu
	Line Input @ Unity Gain, EIN with 40 $\Omega$ Source	-90dBu
	Mix Bus Noise (32 Channels Routed, Faders Down)	-80dBu
	Typical Mix Output Noise (32 Channels Routed)	-73dBu
Aux Bus Noise	<-80dBu	
<b>FREQUENCY RESPONSE</b>	Mic or Line Input to Any Output 20Hz to 20kHz	+0,-0.5dB
<b>INPUT &amp; OUTPUT LEVELS</b>	Mic Input Max Level	+18dBu
	Line Input Max Level	+26dBu
	Insert Send Max Level into 5k $\Omega$	+21dBu
	Insert Send Nominal Level	-2dBu
	Direct Output Max Level into 1k $\Omega$	+21dBu
	Direct Output Nominal Level	-2dBu
	Group Output Max Level into 600 $\Omega$	+26dBu
	Group Insert Nominal Level	-2dBu
	Group Output Nominal Levels	+4dBu
	Aux Output Max Level	+26dBu
	Aux Output Nominal Level	+4dBu
	Mix Output Max Level	+26dBu
	Mix Insert Nominal Level	-2dBu
	Mix Output Nominal Levels	-10dBV or +4dBu
	Internal Operating Level	-2dBu
	Oscillator Max Level @ Group Output	+16dBu
	Headphones Output Max Level into 600 $\Omega$	+20dBu
<b>INPUT &amp; OUTPUT IMPEDANCES</b>	Mic Inputs	
	Electronically Balanced (Transformer Option)	>2k $\Omega$
	Line Inputs Electronically Balanced	>10k $\Omega$
	R.I.A.A. Inputs	220pF, 47k $\Omega$
	Insert Sends	75 $\Omega$
	Insert Returns	10k $\Omega$
Outputs	75 $\Omega$	
<b>METERING</b>	20 Segment LED Bargraph	
	Selectable, Peak or Average Reading	
	Calibration Range	'0'dB = -20dBu to +20dBu
	Accuracy Relative to '0'dB	+/-1dB

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# **Overbridge Options**

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*Introduction*

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*Retrofit Instructions*

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# Introduction

## ***LED Overbridge Option***

The Venue II overbridge provides 16-segment LED metering for input channels, and VU metering for Mix/PFL signals. It is available for the 24, 32 and 40 input consoles only. Mono channels are metered immediately after the input preamplifier, while stereo channels are metered as a mono sum immediately pre-fade.

All 24, 32 and 40 channel consoles are pre-wired for retrofitting the LED overbridge.

All meters are factory calibrated for  $0\text{VU} = +4\text{dBu}$  at 1kHz. The Mix VU meters each have an integral peak LED, which illuminates when the level at the mix output exceeds  $+14.5\text{dBu}$ . The LED indicator has a fast attack/slow decay characteristic to give a clear indication even of short peaks. To allow easy viewing of the meters under low-light conditions, the meter scales are back-lit by bulbs inside the overbridge.

The overbridge may be removed from the console for transport, and is detachable from the console frame. This requires the removal of a few bolts, and the disconnection of a D-type connector.

## ***VU Overbridge Option***

The Venue II VU overbridge provides metering of the groups and mix/PFL signal, providing higher resolution around the  $0\text{VU}$  point than the internal LED bar-graph meters.

The meters are factory calibrated for  $0\text{VU} = +4\text{dBu}$  at 1kHz. Each meter has an integral peak LED, which illuminates when the level at the group or mix output exceeds  $+14.5\text{dBu}$ . The LED indicator has a fast attack/slow decay characteristic to give a clear indication even of short peaks.

To allow easy viewing of the meters under low-light conditions, the meter scales are back-lit by bulbs inside the overbridge.

The overbridge may be removed from the console for transport, and is detachable from the console frame. This requires the removal of a few bolts, and the disconnection of a D-type connector.

When fitting the VU overbridge the existing internal console overbridge wiring must be replaced - instructions and replacement wiring are provided with the overbridge.



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## **Retrofit Instructions (see diagrams overleaf)**

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### ***Preparing the Console***

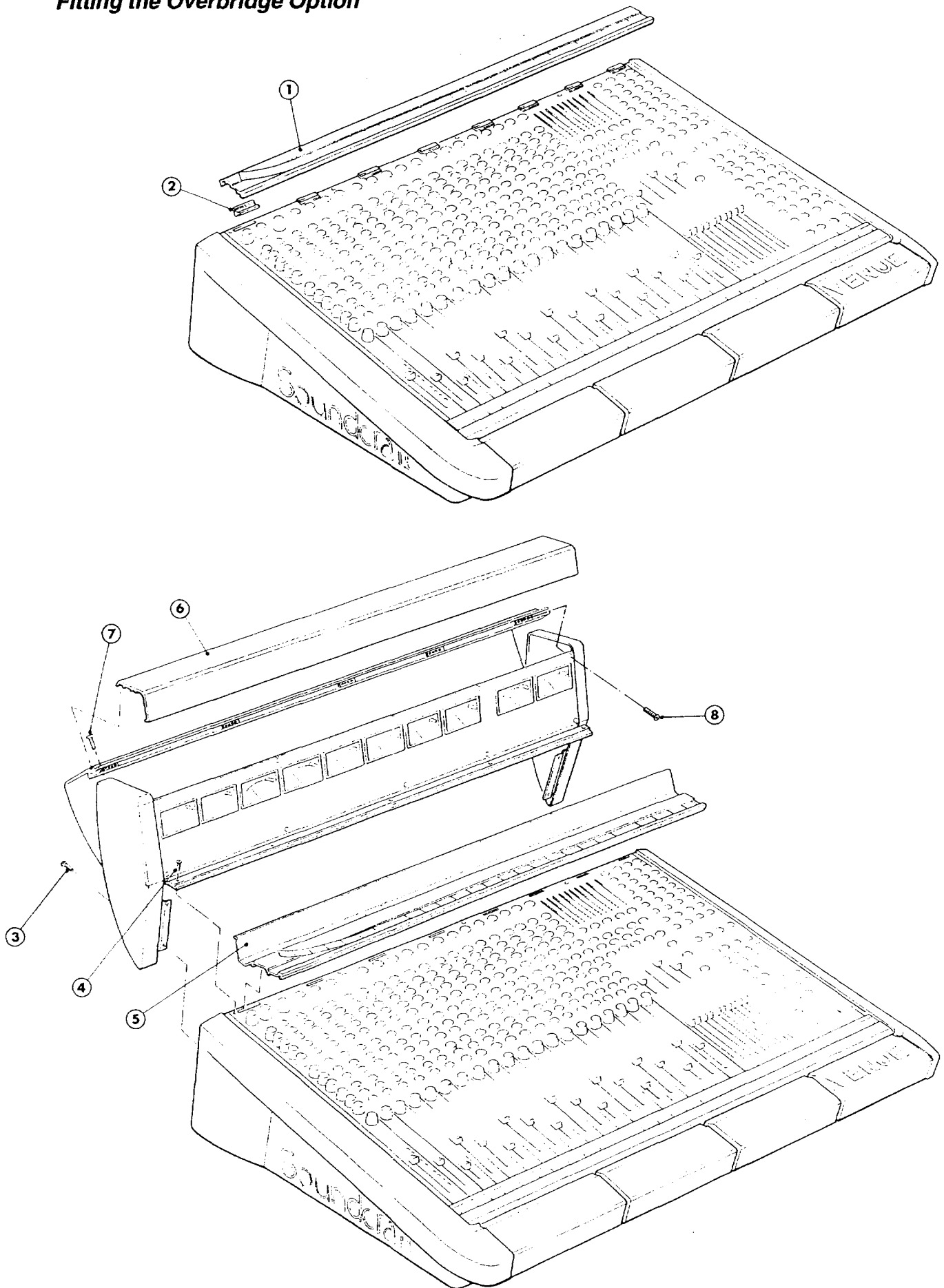
- 1.** Before fitting the overbridge, switch off the power supply unit (PSU), and disconnect it by unscrewing the SRC lead from the rear of the console.
- 2.** Remove the ident strip from the back of the console. The grey plastic ident strip surround (1) is clipped onto the console frame, and may be removed by carefully pulling one end to unclip it. Remove the retaining clips (2) from the upper ident strip position.

### ***Attaching the Overbridge***

- 1.** The overbridge is attached to the frame by M4 bolts (3) - two panel mount at either end of the console on the rear (a total of four), and five (24 channel), six (32 channel) or seven (40 channel) countersunk on the top of the console (4).
- 2.** Once the overbridge body has been bolted to the frame, the replacement upper ident strip supplied (5) should be pressed into place to cover the screws on the upper surface of the console.
- 3.** Plug the cable from the overbridge into the D-type connector on the rear of the console, and tighten up the retaining jackscrews.
- 4.** Re-connect the PSU to the console, and switch it on.

Check that the Mix meters on the overbridge are all illuminated and, by slating the internal oscillator to the groups and mix, check that the meters function correctly.

## Fitting the Overbridge Option



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# Appendices

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# Specification Notes

## **SPECIFICATION NOTES AND CONDITIONS**

**A** The figures displayed in the Specification tables are for a 32 input channel console: other frame sizes may show different results.

**B** The console has a nominal output level of +4dBu: all input sensitivities are relative to this: i.e. with line input gain set to '0', an input of 0dBu, will give an output of +4dBu at any group or mix output and, a sensitivity of +4dBu gives unity gain from input to output.

**C** Noise measurements are taken with 22Hz-22kHz bandwidth, average reading response.

**D** Distortion measurements are made with an input of +20dBu (line inputs at +4dBu sensitivity) giving an output of +20dBu. The analyser reads THD+N with an average response, over a 30kHz bandwidth.

**E** Frequency response and E.Q. measurements are made with an input of 0dBu to line inputs at unity gain, outputs are quoted relative to 0dBu.

**F** Crosstalk and rejection measurements are made with an input level of +20dBu (line inputs at +4dBu sensitivity) giving an output of +20dBu on the active signal path. The ratio quoted is relative to +20dBu output.

**G** Gain tolerance +/-1.5dB or 10% of indicated value, which ever is the greater.

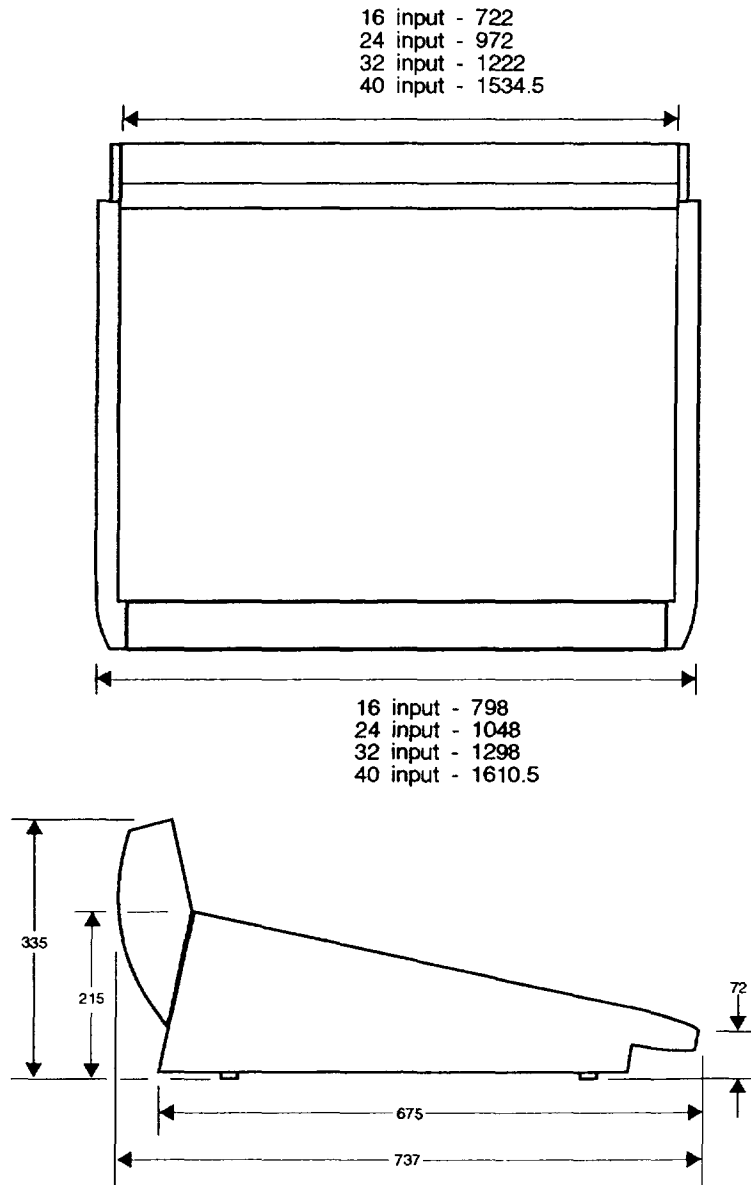
**H** All crosstalk and rejection figures stated with 16 channels routed to the measured output, where applicable.

**I** Mix noise figures are stated in three ways:

- Bus residual noise: Noise measured at the output with no inputs routed.
- Mix bus noise: Noise measured at the output with 16 channels routed, faders down.
- Typical mix noise: Noise measured at the output with 16 channels routed, faders at 0, line inputs at +4dBu sensitivity, terminated 40Ω.

# Dimensions

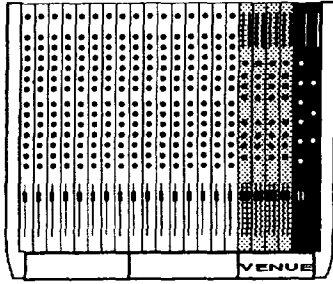
## Venue II Outline Dimensions



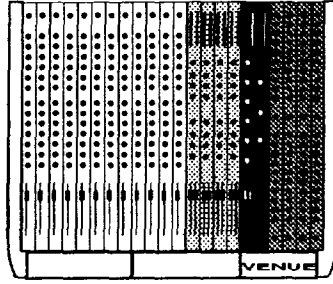
All dimensions shown in millimetres (mm).

# Configurations

## 16 Input Frame

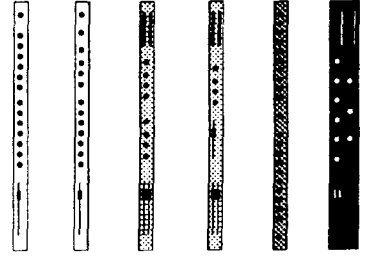


16:8:2



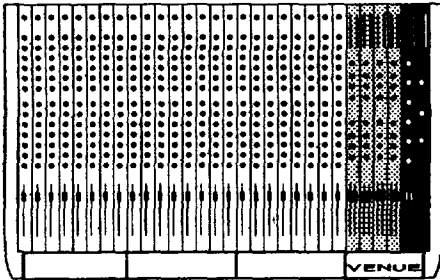
12:8:2 8x8 matrix

## Key

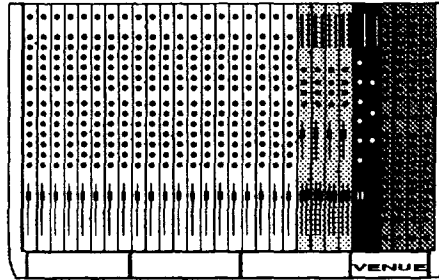


Mono Input Stereo Input Dual Group/EQ Dual Group/Stereo Return Dual Matrix Master

## 24 Input Frame

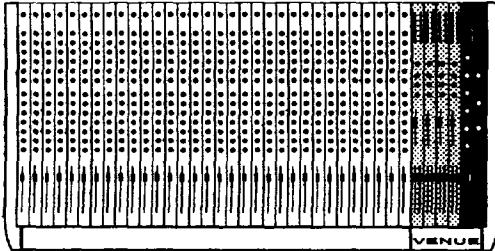


24:8:2

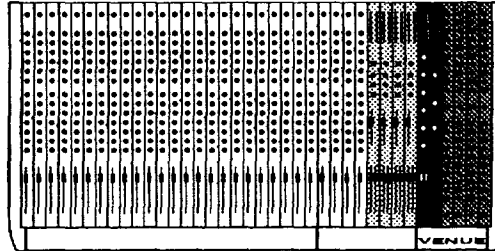


20:8:2 8x8 matrix

## 32 Input Frame

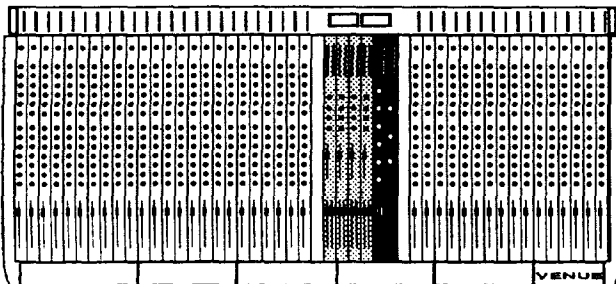


32:8:2

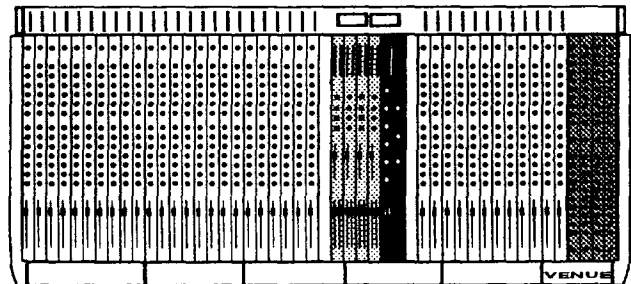


28:8:2 8x8 matrix

## 40 Input Frame with overbridge (optional on 24,32 & 40 input frames)



40:8:2



36:8:2 8x8 matrix

Above only shows samples of most popular options - there are few practical restrictions to potential configurations in any 4 frames, using the individual channel and group modules and separate master module. Please consult your dealer for advice on particular layouts.

# Warranty

- 1.1 Soundcraft** means Soundcraft Electronics Ltd.
- 1.2 Owner** means the purchaser of the Equipment from Soundcraft or its dealer, who is the legal and beneficial owner at the time the Warranty claim is made.
- 1.3 Dealer** means the person other than Soundcraft (if any) from whom the Owner purchased the Equipment, provided such a person is authorised for this purpose by Soundcraft.
- 1.4 Equipment** means the equipment sold with this warranty card.
- 2** If within the period of twelve months from the date of delivery of the Equipment to the Owner, it shall prove defective by reason only of faulty materials and/or workmanship to such an extent that the suitability for the purpose for which it has been designed is materially affected, the Equipment or, with the consent of Soundcraft or the Dealer, 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 any defective component. Any Equipment or component replaced will become the property of Soundcraft.
- 3** Any Equipment or component returned will be at the risk of the Owner whilst in transit (both to and from the Dealer or Soundcraft) and postage and/or delivery charges must be prepaid.
- 4** This warranty shall only be available if:
- a) the Warranty Card has been returned to Soundcraft within thirty days of purchase of the Equipment by the Owner; and
  - b) the Equipment has been properly installed in accordance with instructions contained in Soundcraft's manual; and
  - c) the Owner has notified Soundcraft or the Dealer within fourteen days of the defect appearing; and
  - d) no persons other than authorised representatives of Soundcraft or the Dealer have effected any replacement of parts or carried out maintenance, adjustments or repairs to the Equipment; and
  - e) the Owner has used the Equipment only for such purposes as Soundcraft recommends, with only such electrical and 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: mishandling, chemical, electro-chemical, electro-magnetic or electrical influences, accidental damage, Acts of God, neglect, deficiency excess or surges in electrical power, air-conditioning or humidity.
- 6.** The benefit of this Warranty may not be assigned by the Owner.
- 7.** Owners who are consumers should note that 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.

## Glossary

<b>auxiliary send</b>	an output from the console comprising a mix of signals from channels and groups derived independently of the main stereo/group mixes. Typically the feeds to the mix are implemented on rotary level controls.
<b>balance</b>	the relative levels of the left and right channels of a stereo signal.
<b>clipping</b>	the onset of severe distortion in the signal path, usually caused by the peak signal voltage being limited by the circuit's power supply voltage.
<b>CR (control room) monitors</b>	loudspeakers used by the operator (engineer) in the control room to listen to the mix.
<b>dB (decibel)</b>	a ratio of two voltages or signal levels, expressed by the equation $dB=20\text{Log}_{10}(V1/V2)$ . Adding the suffix 'u' denotes the ratio is relative to 0.775V RMS.
<b>DI(direct injection)</b>	the practice of connecting an electric musical instrument directly to the input of the mixing console, rather than to an amplifier and loudspeaker which is covered by a microphone feeding the console.
<b>equaliser</b>	a device that allows the boosting or cutting of selected bands of frequencies in the signal path.
<b>foldback</b>	a feed sent back to the artistes via loudspeakers or headphones to enable them to monitor the sounds they are producing.
<b>frequency response</b>	the variation in gain of a device with frequency.
<b>(sub) group</b>	an output into which a group of signals can be mixed.
<b>headroom</b>	the available signal range above the nominal level before clipping occurs.
<b>highpass filter</b>	a filter that rejects low frequencies.
<b>line level signals signals</b>	at a nominal level of -10 to +6dBu, coming from a low impedance source.
<b>pan (pot)</b>	abbreviation of 'panorama': controls levels sent to left and right outputs.
<b>peaking</b>	an equaliser response curve affecting only a band of frequencies i.e. based on a bandpass response.



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## **Glossary**

<b>PFL (pre-fade listen)</b>	a function that allows the operator to monitor the pre-fade signal in a channel independently of the main mix.
<b>rolloff</b>	a fall in gain at the extremes of the frequency response.
<b>shelving</b>	an equaliser response affecting all frequencies above or below the break frequency i.e. a highpass or lowpass derived response.
<b>spill</b>	acoustic interference from other sources.
<b>talkback</b>	the operator speaking to the artistes or to tape via the auxiliary or group outputs.
<b>transient</b>	a momentary rise in the signal level.