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# **SOUNDCRAFT B 800**

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## **User Guide**

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# Table of Contents

|   |             |
|---|-------------|
| <b>1.Introduction</b>                         | <b>1.1</b>  |
| <i>Introduction</i>                           | <i>1.2</i>  |
| <i>Warranty</i>                               | <i>1.3</i>  |
| <br>  |             |
| <b>2. Installation</b>                        | <b>2.1</b>  |
| <i>Dimensions</i>                             | <i>2.2</i>  |
| <i>Meterbridge</i>                            | <i>2.3</i>  |
| <i>EDAC Connectors</i>                        | <i>2.4</i>  |
| <i>Rear Connector Panel D-type Connectors</i> | <i>2.6</i>  |
| <i>Jumper Options</i>                         | <i>2.8</i>  |
| <i>Internal Monitor Source Selection</i>      | <i>2.12</i> |
| <br>  |             |
| <b>3. Block Diagrams</b>                      | <b>3.1</b>  |
| <i>Mono Input Block Diagram</i>               | <i>3.2</i>  |
| <i>Group Module Block Diagram</i>             | <i>3.3</i>  |
| <i>Stereo Input Block Diagram</i>             | <i>3.4</i>  |
| <i>Stereo Group Module Block Diagram</i>      | <i>3.5</i>  |
| <i>ST1 /ST2 Master Block diagram</i>          | <i>3.6</i>  |
| <i>Monitor Block Diagram</i>                  | <i>3.7</i>  |
| <i>Comms Block Diagram</i>                    | <i>3.8</i>  |
| <br>  |             |
| <b>4. Functional Description</b>              | <b>4.1</b>  |
| <i>Mono Input Module</i>                      | <i>4.2</i>  |
| <i>Stereo Input Module</i>                    | <i>4.8</i>  |
| <i>Mono Group Module</i>                      | <i>4.14</i> |
| <i>Stereo Group Module</i>                    | <i>4.18</i> |

|                                     |             |
|-------------------------------------|-------------|
| <i>Master ST1 &amp; ST2 Modules</i> | <i>4.22</i> |
| <i>Monitor Module</i>               | <i>4.26</i> |
| <i>Communication Module</i>         | <i>4.30</i> |
| <i>Meterbridge Modules</i>          | <i>4.34</i> |
| <b>5.Specifications</b>             | <b>5.1</b>  |

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# 1.Introduction

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# Introduction

## **B800**

Congratulations on purchasing a Soundcraft console. The **B800** has been designed to meet today's needs of Live TV & Radio Broadcast and Production Facilities including OB vehicles.

### ***System Features***

The B800 features:

- 5 frame sizes: 24, 32, 40, 48 and 56 module-widths are available.
- 8 Mono Groups (or 4 Stereo Groups).
- 2 Stereo Master Outputs.
- 6 Mono Auxes & 2 Stereo Auxes.
- Stereo AFL/PFL
- 4 VCA Groups

### ***Power Supply***

The B800 uses the CPS275 Power Supply.

# Warranty

- 1 **Soundcraft** is a trading division of Harman International Industries Ltd .

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

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

**Equipment** means the equipment supplied with this manual.

- 2 If within the period of twelve months from the date of delivery of the Equipment to the End User it shall prove defective by reason only of faulty materials and/or workmanship to such an extent that the effectiveness and/or usability thereof is materially affected the Equipment or the defective component should be returned to the Dealer or to Soundcraft and subject to the following conditions the Dealer or Soundcraft will repair or replace the defective components. Any components replaced will become the property of Soundcraft.
- 3 Any Equipment or component returned will be at the risk of the End User whilst in transit (both to and from the Dealer or Soundcraft) and postage must be prepaid.
- 4 This warranty shall only be available if:
  - a) the Equipment has been properly installed in accordance with instructions contained in Soundcraft's manual; and
  - b) the End User has notified Soundcraft or the Dealer within 14 days of the defect appearing; and
  - c) no persons other than authorised representatives of Soundcraft or the Dealer have effected any replacement of parts maintenance adjustments or repairs to the Equipment; and
  - d) the End User has used the Equipment only for such purposes as Soundcraft recommends, with only such operating supplies as meet Soundcraft's specifications and otherwise in all respects in accordance Soundcraft's recommendations.
- 5 Defects arising as a result of the following are not covered by this Warranty: faulty or negligent handling, chemical or electro-chemical or electrical influences, accidental damage, Acts of God, neglect, deficiency in electrical power, air-conditioning or humidity control.
- 6 The benefit of this Warranty may not be assigned by the End User.
- 7 End Users who are consumers should note their rights under this Warranty are in addition to and do not affect any other rights to which they may be entitled against the seller of the Equipment.





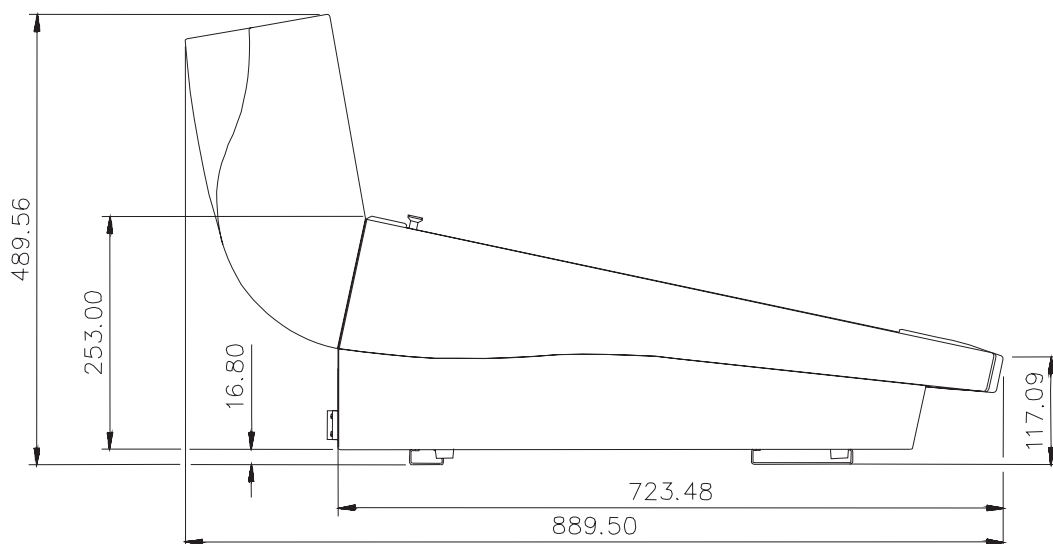
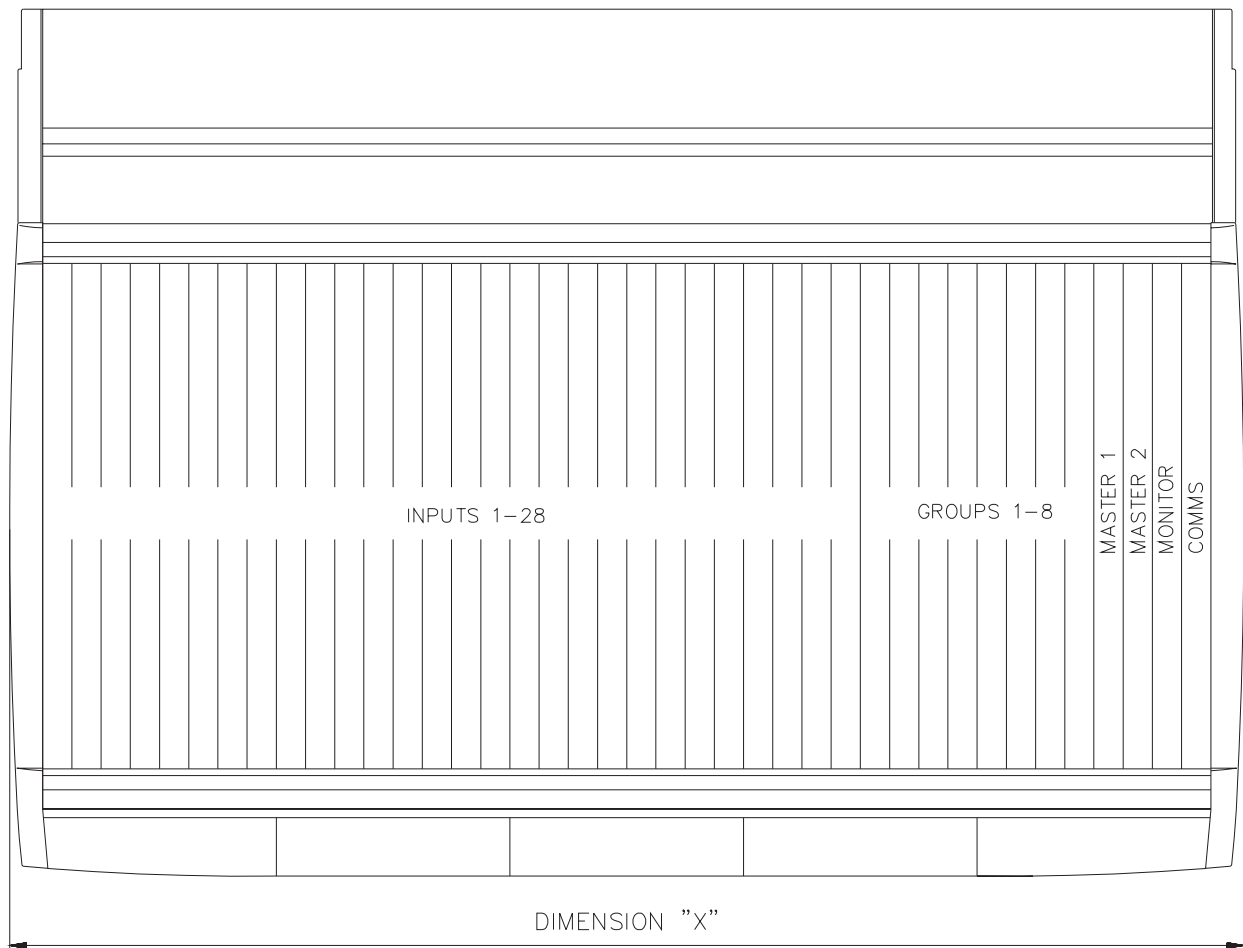
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## 2. Installation

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# Dimensions

|      |    |      |       |           |     |   |           |
|------|----|------|-------|-----------|-----|---|-----------|
| B800 | 24 | SLOT | FRAME | DIMENSION | "X" | = | 833.72mm  |
| B800 | 32 | SLOT | FRAME | DIMENSION | "X" | = | 1087.72mm |
| B800 | 40 | SLOT | FRAME | DIMENSION | "X" | = | 1341.72mm |
| B800 | 48 | SLOT | FRAME | DIMENSION | "X" | = | 1595.72mm |
| B800 | 56 | SLOT | FRAME | DIMENSION | "X" | = | 1849.72mm |

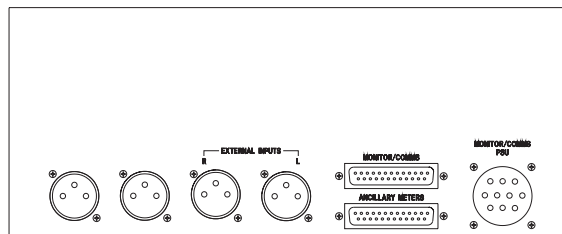


# Earthing The Console

**Important Notice.** The console has two earth posts on the rear connector panel. They are located near to the power supply connectors. The un-insulated metal post is the chassis ground, and the insulated post is the system ground. The console is supplied with these two posts linked together. It is essential that the console is operated with these two earths linked. They may, however, be linked at a different point in the installation: for example, a technical earth in the installation site. In this case the wire link between the two posts must be removed.

## Meterbridge

The meterbridge has a number of connectors as shown below.



The **MONITOR/COMMS** D-type connector routes signals to the Monitor Selector PCB ( see the Meterbridge connector list on the previous page for pin details).

The **ANCILLARY METERS** D-type connector carries the Groups and Auxes into the meterbridge. The actual connections used will depend on the number of ancillary meters which are fitted. The connections are:

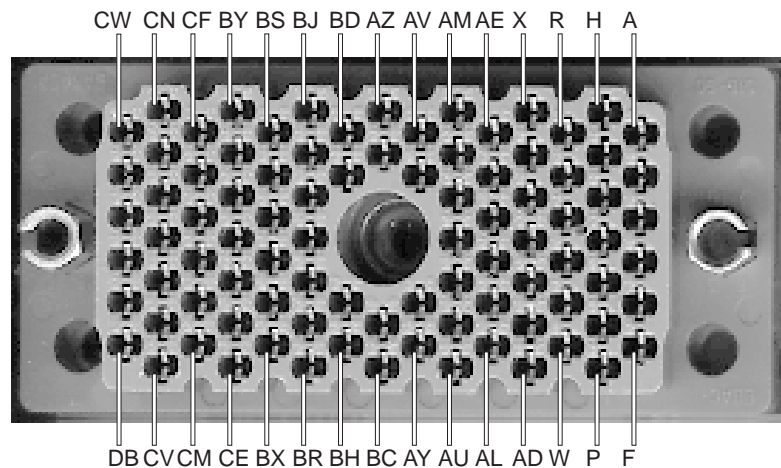
|    |          |    |          |
|----|----------|----|----------|
| 1  | Gnd      | 14 | Gnd      |
| 2  | Group8   | 15 | Group7   |
| 3  | Group6   | 16 | Group5   |
| 4  | Group4   | 17 | Group3   |
| 5  | Group2   | 18 | Group1   |
| 6  | Not Used | 19 | Not Used |
| 7  | Not Used | 20 | Not Used |
| 8  | Aux1     | 21 | Aux2     |
| 9  | Aux3     | 22 | Aux4     |
| 10 | Aux5     | 23 | Aux6     |
| 11 | Aux7L    | 24 | Aux7R    |
| 12 | Aux8L    | 25 | Aux8R    |
| 13 | Not Used |    |          |

The **EXTERNAL INPUTS** XLRs are also routed to the Monitor Selector PCB. The inputs here may be monitored on the Meters which are associated with the Monitor Selector PCB.

There are also 2 additional XLRs. The first of this is commonly used to connect the T/B Mic feed from the meterbridge to the T/Binput in the console, via the XLR on the flying lead. The second XLR is for future expansion.

## Rear Connector Panel EDAC Connectors

There are two 90-way EDAC's associated with the master section. Viewed from the rear of the console, EDAC1 is to the right of EDAC2. These 2 EDAC's have the functions described on the next pages. Other EDACs on the console may be for stereo group and stereo channel outputs, and wiring information for these will be specified to each console and is therefore supplied separately. These EDAC receptacles, often known as female, have pins which are surrounded by a protruding plastic moulding. The photograph below shows the pin labelling (as viewed from the outside of the console).



The pins are listed in circuits below - the circuit functions for each EDAC are shown on the following pages.

|        | HI (+) | LO (-) | GND |
|--------|--------|--------|-----|
| CCT 1  | A      | B      | C   |
| CCT 2  | H      | J      | K   |
| CCT 3  | R      | S      | T   |
| CCT 4  | X      | Y      | Z   |
| CCT 5  | AE     | AF     | AH  |
| CCT 6  | AM     | AN     | AP  |
| CCT 7  | BJ     | BK     | BL  |
| CCT 8  | BS     | BI     | BU  |
| CCT 9  | BY     | BZ     | CA  |
| CCT 10 | CF     | CH     | CJ  |
| CCT 11 | CN     | CP     | CR  |
| CCT 12 | CW     | CX     | CY  |
| CCT 13 | F      | E      | D   |
| CCT 14 | P      | N      | M   |
| CCT 15 | W      | V      | U   |
| CCT 16 | AD     | AC     | AB  |
| CCT 17 | AL     | AK     | AJ  |
| CCT 18 | AU     | AT     | AS  |
| CCT 19 | BR     | BP     | BN  |
| CCT 20 | BX     | BW     | BV  |
| CCT 21 | CE     | CD     | CC  |
| CCT 22 | CM     | CL     | CK  |
| CCT 23 | CV     | CU     | CT  |
| CCT 24 | DB     | PA     | CZ  |

## 90-Way EDAC 1 & 2 Details

### EDAC 1

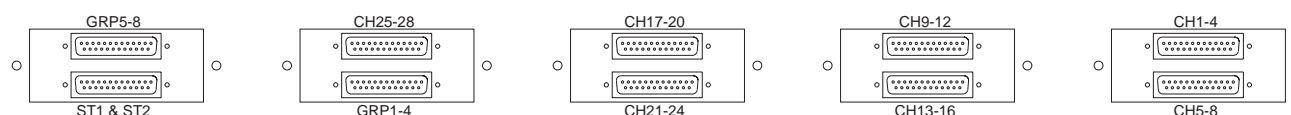
| Circuit Number | Function      |
|----------------|---------------|
| CCT 1          | not used      |
| CCT 2          | Ext Cue I/P   |
| CCT 3          | Prod T/B I/P  |
| CCT 4          | T/B to Ext    |
| CCT 5          | Oscillator L  |
| CCT 6          | Oscillator0 R |
| CCT 7          | Ext Mon I/P L |
| CCT 8          | Ext Mon I/P R |
| CCT 9          | Stud Spkr L   |
| CCT 10         | Stud Spkr R   |
| CCT 11         | PH1L Studio   |
| CCT 12         | PH1R Studio   |
| CCT 13         | T/B to opt 1  |
| CCT 14         | T/B to opt 2  |
| CCT15          | Ext 1L        |
| CCT16          | Ext 1R        |
| CCT17          | Ext 2L        |
| CCT18          | Ext 2R        |
| CCT19          | Ext 3L        |
| CCT20          | Ext 3R        |
| CCT21          | Ext 4L        |
| CCT22          | Ext 4R        |
| CCT 23         | PH2L Guest    |
| CCT 24         | PH2R Guest    |

### EDAC 2

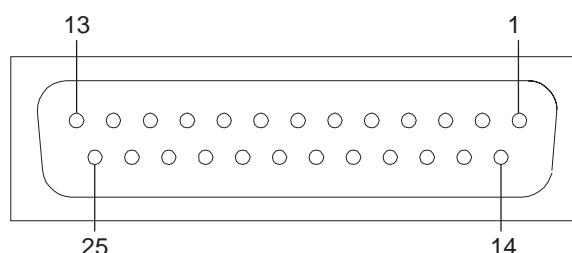
| Circuit Number | Function        |
|----------------|-----------------|
| CCT 1          | Mono 2          |
| CCT 2          | Aux 2           |
| CCT 3          | Aux 4           |
| CCT 4          | Aux 6           |
| CCT 5          | Aux 8 L         |
| CCT 6          | Aux 8 R         |
| CCT 7          | Ext 5L          |
| CCT 8          | Ext 5R          |
| CCT 9          | Ext 6L          |
| CCT 10         | Ext 6R          |
| CCT 11         | Ext 7L          |
| CCT 12         | Ext 7R          |
| CCT13          | RTN T/B         |
| CCT14          | T/B Line Output |
| CCT 15         | ST1L            |
| CCT 16         | ST1R            |
| CCT 17         | Mono 1          |
| CCT 18         | Aux 1           |
| CCT 19         | Aux 3           |
| CCT 20         | Aux 5           |
| CCT 21         | Aux 7L          |
| CCT 22         | Aux 7R          |
| CCT 23         | Ext 8L          |
| CCT 24         | Ext 8R          |

## Rear Connector Panel D-type Connectors

There are a number of 25-way D-type female connectors (depending upon the number of input channels) on the rear connector panel. The diagram below shows a typical view of those which are located at the bottom edge of the rear connector panel.



The diagram below shows the pin labelling (as viewed from the outside of the console).



The pin-outs of the various D-types are given below.

### Remote 25-way D-types

| Pin  | Function                           | Pin | Function                           |
|--|------------------------------------|-----|------------------------------------|
| Channel 4 (8) (12) (16) (20) (24) (28) (GRP4) (GRP8)       |                                    |     |                                    |
| 1  | EXT MUTE (active low)              | 14  | VCA CTL (0V=0dB, 5V= -∞)           |
| 2  | STOP #2(n/o relay contact)         | 15  | STOP #1(n/o relay contact)         |
| 3  | REMOTE START#2 (n/o relay contact) | 16  | REMOTE START#1(n/o relay contact)  |
| Channel 3 (7) (11) (15) (19) (23) (27) (GRP3) (GRP7)       |                                    |     |                                    |
| 4  | EXT MUTE                           | 17  | VCA CTL                            |
| 5  | STOP #2(n/o relay contact)         | 18  | STOP #1(n/o relay contact)         |
| 6  | REMOTE START#2 (n/o relay contact) | 19  | REMOTE START#1(n/o relay contact)  |
| Channel 2 (6) (10) (14) (18) (22) (26) (GRP2) (GRP6) (ST2) |                                    |     |                                    |
| 7  | EXT MUTE                           | 20  | VCA CTL                            |
| 8  | STOP #2(n/o relay contact)         | 21  | STOP #1(n/o relay contact)         |
| 9  | REMOTE START #2(n/o relay contact) | 22  | REMOTE START#1(n/o relay contact)  |
| Channel 1 (5) (9) (13) (17) (21) (25) (GRP1) (GRP5) (ST1)  |                                    |     |                                    |
| 10   | EXT MUTE                           | 23  | VCA CTL                            |
| 11   | STOP #2(n/o relay contact)         | 24  | STOP #1(n/o relay contact)         |
| 12   | REMOTE START #2(n/o relay contact) | 25  | REMOTE START #1(n/o relay contact) |
| 13   | not used                           |     |                                    |

Notes: GRP & ST Master modules do not utilise the "stop" function.

The remaining 2 sections of the ST1& ST2 connector are not connected.

Ground Ref. for EXT MUTE and VCA CTL is on EXT LOGIC D-type connector.

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## EXT LOGIC

| Pin | Function                  | Pin | Function                |
|-----|---------------------------|-----|-------------------------|
| 1   | GND                       | 14  | GND                     |
| 2   | GND                       | 15  | Prod T/B Stud CTL       |
| 3   | Prod T/B to Ext CTL (I/P) | 16  | Mic Open (active low )  |
| 4   | Prod T/B to Eng CTL (I/P) | 17  | Talk to Ext CTL O/P     |
| 5   | Option 2 - CTL #2 / CF2   | 18  | Option 2 - CTL #1 / CF2 |
| 6   | Option 1 - CTL #2 / CF1   | 19  | Option 1 - CTL #1 / CF1 |
| 7   | On-Air o/p #              | 20  | On-Air O/P #2           |
| 8   | On-Air i/p #1             | 21  | On-Air I/P #2           |
| 9   | Not Used                  | 22  | Not Used                |
| 10  | Ext Mntr (Level CTL I/P)  | 23  | Ext CUE (Level CTL I/P) |
| 11  | RET T/B CTL (I/P)         | 24  | Ext A/B CTL R (I/P)     |
| 12  | Ext A/B CTL L (I/P)       | 25  | Ext mute R (I/P)        |
| 13  | Ext mute L (I/P)          |     |                         |

## METERBRIDGE

This connects via a ribbon cable to the Monitor/Comms D-type on the meterbridge.

|    |                     |    |                |
|----|---------------------|----|----------------|
| 1  | ST1Left             | 14 | ST1Right       |
| 2  | ST2Left             | 15 | ST2Right       |
| 3  | MONO1               | 16 | MONO2          |
| 4  | Not used            | 17 | Not used       |
| 5  | Not used            | 18 | Not used       |
| 6  | Not Used            | 19 | GND            |
| 7  | Not Used            | 20 | TB Mic +1V5    |
| 8  | Studio Right        | 21 | Studio Left    |
| 9  | Ext VCA Warning LED | 22 | Monitor Left   |
| 10 | Monitor Right       | 23 | O/Press Signal |
| 11 | O/Press Ctl         | 24 | Squawk Feed    |
| 12 | Cue Meter Right     | 25 | Cue Left       |
| 13 | Cue Ctl             |    |                |

# Jumper Options

## MONO INPUT

\* = DEFAULT

Note: Internal switch SW22 and Links 1 to 4 operate in conjunction with each other.

SW22 Released = Insert Point is Pre-fade (see links 1 to 4)  
Depressed = Insert Point is Post-fade (links 1 to 4 have no effect, but they must be present)

LK1-4 Pre-fade Insert 1-2 = Pre Eq,  
2-3 = Post Eq\*

J1 Fit for VCA Option

J2 VCA GND 1-2 = Local \*  
2-3 Master 0V

J3 Remote Start 1-2 Pulse start/stop \*  
2-3 latched on-off

J4 Remote Start SW 1-2 . Omit Diode D10\*  
fit 2-3 for no REMOTE START SW

J5 Remote Start SW Function 1-2 = Start pulses only.  
2-3 = Latching start/stop \*

J6 \* Omit for meter cal

J7 Stereo Auxes 1-2 Pre-mute\*  
2-3 Post-mute

J8 Mono Auxes 1-2 Pre Mute  
2-3 Post Mute \*

J9 Slate/Cleanfeed 1-2 makes these mutually exclusive.  
2-3 interactive\*

J10 Meter feed 1-2 Pre EQ  
2-3 Pre Fade (post mute)\*

J11 Remote Common 1-2 Remote.  
2-3 Local \*

J12 Signalisation 1-2 Monitor Dim.  
2-3 Studio Mute\*

J13 Signalisation 1-2 Line Input only.  
2-3 Mic Input only\*

J14 Meter Feed 1-2 Meter Feed is 'Aux1 to Direct O/P'  
2-3 Meter follows J10 setting

J15 Direct Output 1-2 Direct O/P is PRE Mute  
2-3 Direct O/P is AFL

J16 Remote Start 1-2 Remote Start is active only in LINE mode  
2-3 Remote Start is active only in MIC



---

### MONO GRP

|          |            |  |
|----------|------------|--|
| J1       | Rem Com    | A = local *  |
| 3 pin    |            | B = rem com  |
| J2       |            | FIT = t/b replaces prog ( to grp o/p )*              |
| 2 pin    |            | OMIT = t/b mix with prog                             |
| J3       |            | FIT = slate replaces prog*                           |
| 2 pin    |            | OMIT = slate mix with prog                           |
| J4       |            | A = On Air does not kill T/B to GRP O/P *            |
| 3 pin    |            | B = On Air kills T/B to GRP O/P                      |
| J5       |            | A= Limiter Affects St feed & GRP to GRP routing      |
| 3 pin    |            | B= Limiter Bypass for St ETC limit on GRP O/P only * |
| J6       |            | FIT = Pre-emphasis on limit side chain *             |
| 2 pin    |            | omit = no pre-emphasis)                              |
| J7       | Mono aux   | A = Pre mute   |
| 3 pin    |            | B = post mute*                                       |
| J8       | St Aux 7/8 | A = Pre mute*  |
| 3 pin    |            | B = Post mute  |
| J9 - J13 |            | Not Used   |

S30 = INT Insert Pre/post SW    \* = Pre-Fade

### STEREO GRP

|            |            |   |
|------------|------------|---|
| J1         | Rem Com    | 1-2 = local *   |
| 3 pin      |            | 2-3 = rem com   |
| J2         |            | FIT = t/b replaces prog ( to grp o/p )*               |
| 2 pin      |            | OMIT = t/b mix with prog                              |
| J3         |            | FIT = slate replaces prog*                            |
| 2 pin      |            | OMIT = slate mix with prog                            |
| J4         |            | 1-2 = On Air does not kill T/B to GRP O/P *           |
| 3 pin      |            | 2-3 = On Air kills T/B to GRP O/P                     |
| J5         | Left       | 1-2= Limiter Affects St feed & GRP to GRP routing     |
| 3 pin      |            | 2-3= Limiter Bypass for St ETC limit on GRP O/P only* |
| J7         | Right      | 1-2= Pre mute   |
| 3 pin      |            | 2-3 = post mute*                                      |
| J9 , J10   | St Aux 7/8 | 1-2 = Pre fader                                       |
| 3 pin      |            | 2-3= Pre mute   |
| J11, J12   | Mono sum   | 1-2 =Pre fader  |
|            | for Aux1-6 | 2-3=Pre Mute  |
| J13 to J17 |            | Not Used  |



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## MONITOR MODULE

|                |       |  |
|----------------|-------|--|
| J1             | 1-2 * | 2-3 'Ext 8' Input is -10dBV sensitivity                                      |
| J2/J3/J4       | 1-2 * | Cue to Monitor   |
|                | 2-3   | Talk to Studio (used with used with 2 monitor modules as C/room /Studio)     |
| J5/J6/J7/J8/J9 | 1-2 * |  |
|                | 2-3   | Prod T/B to Studio (used with used with 2 monitor modules as C/room /Studio) |

### J10 & J11

If the Q Speaker Outputs are not being used, link J10 pins 1 to 2, and link J11 pins 1 to 2. In this configuration, a sum of the Cue Left and Right Signals are routed to the Cue Speaker on the Overbridge. This feed is muted by using the Overpress facility (if it is fitted).

If the Q Speaker Outputs are being used, link J10 pin1 to J11 pin1, and link J10 pin 2 to J11 pin 2. In this configuration the sum of the Cue Left and Cue Right signals is never routed to the Cue Speaker on the Overbridge. The individual Cue Left and Cue Right signals are routed to their respective Cue Speaker Outputs, but these are muted by using the Overpress facility (if it is fitted). Alternatively if only pins J10 pin2 and J11 pin 2 are linked then the Overpress facility will not mute the Cue L & R signals to the Cue Speaker Outputs.

|     |       |  |
|-----|-------|--|
| J12 | 1-2 * | Cue mixes with H/phone prog            |
|     | 2-3   | Cue replaces H/phone prog              |
| J13 | 1-2*  | for monitor dim by DIM bus             |
|     | 2-3   | for monitor mute by dim bus            |
| J14 | 1-2 * | Studio Mute                            |
|     | 2-3   | fit for use as a Studio Monitor Module |

Dim range is adjustable from 0 to -30dB by preset pot VR7.

## COMMS MODULE

|         |                                     |  |
|---------|-------------------------------------|--|
| J1 & J2 | 1 & 2 linked on both jumpers        | Signal from EXT CUE on Comms Module EDAC are routed by released OPT 1 And OPT 2 switches to the T/B to OPT1 and the T/B to OPT2 outputs on the Comms Module EDAC |
|         | Pins 2 & 3 linked on both jumpers = | EXT CUE signal not routed.   |
| J3      | T/B to Studio Speakers              |  |
|         | 1- 2 *                              | Mute kills T/B to Spkrs  |
|         | 2- 3                                | T/B overrides Mute   |
| J4      | 1-2 *                               | T/B mixes with prog  |
|         | 2 - 3                               | T/B replaces prog (& Prod T/B)   |
| J5 & 6  | 2-3 fitted *                        |  |

T/B line input level is set by preset VR8

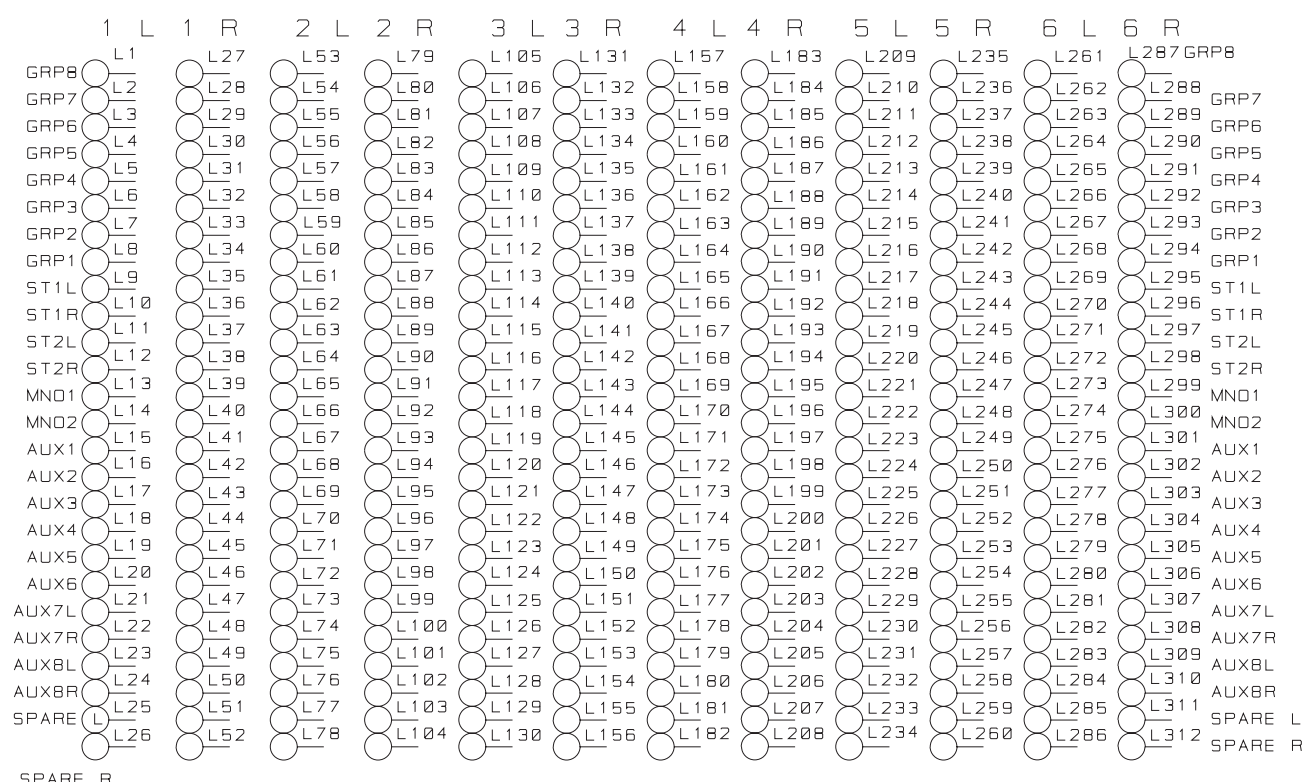
Dim range is adjustable from 0 to -30dB by preset VR15

# Internal Monitor Source Selection

The **DESK 'A'** bank of switches, on the Monitor Module, allows you to select 1 of 6 internal signals as the internal monitor source. The 6 are selected via the scramble card (SC3556) in the console. The appropriate section of this PCB's silk screen is reproduced below. The six signals may be chosen from the following list:

- Group 1 to Group 8 ( Group 1 to Group 4 L + R for Stereo Group )
- The Main Stereo Mixes of the ST1 and the ST2 Modules
- The Mono Mixes of the ST1 and the ST2 Modules
- Aux1 to Aux8.

There is also a spare left and spare right feed which may be used to monitor any suitable point in the console.



## Fitting Links

Suitably sized hair-pin links may be soldered into the appropriate through-plated holes. Take care to select the correct side when connecting a stereo pair. For example, if you wanted to assign Source 1 to Aux 6 then you would fit links L20 and L46. If you then wanted to assign Source 2 to Aux 7 (which is a stereo pair) then you would fit links L73 and L100.

The factory default setting is:

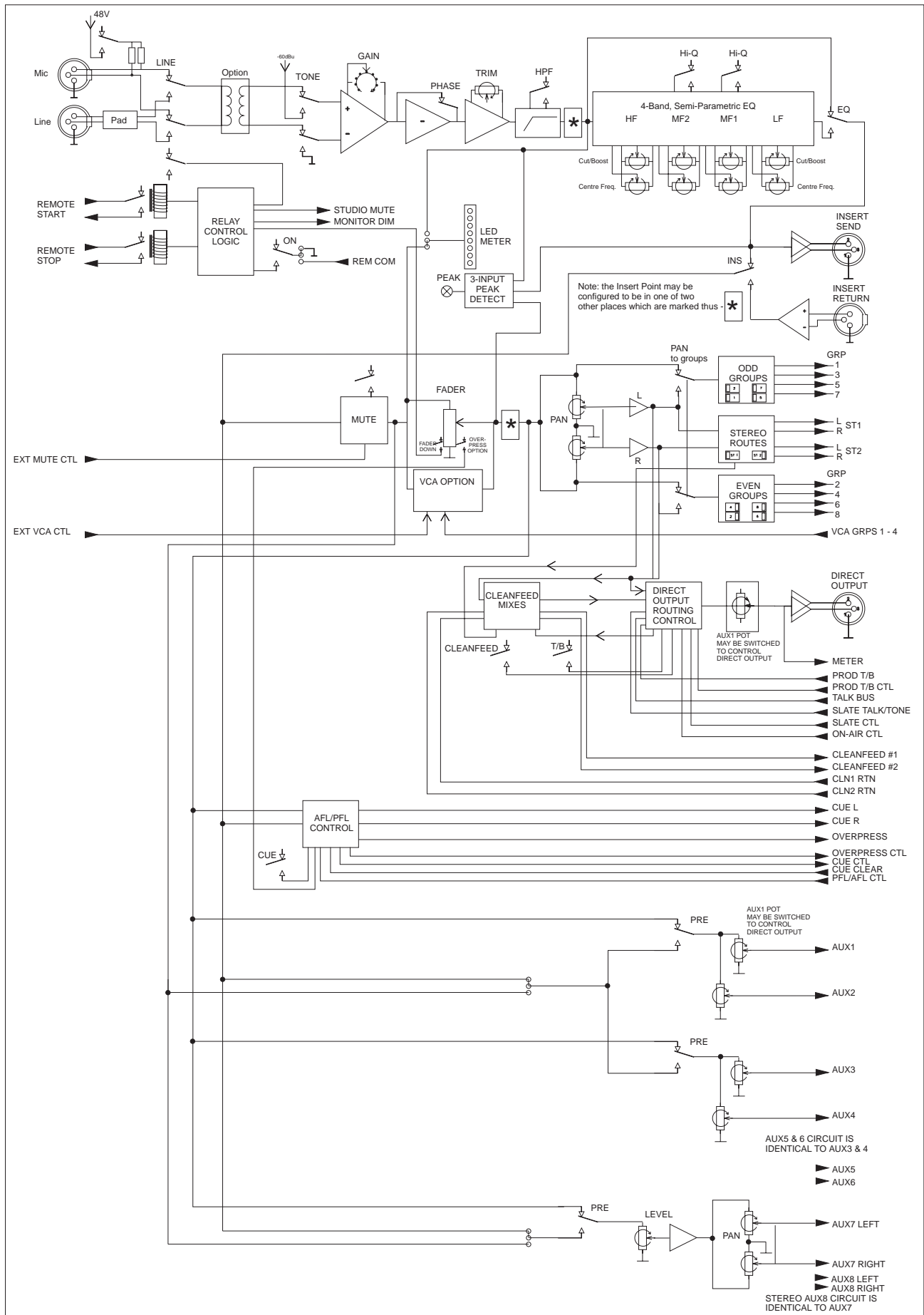
|          | Left           | Right          |
|----------|----------------|----------------|
| Source 1 | ST1 L          | ST1 R          |
| Source 2 | ST2 L          | ST2 R          |
| Source 3 | GP1 / ( GP1L ) | GP2 / ( GP1R ) |
| Source 4 | GP3 / ( GP2L ) | GP4 / ( GP2R ) |
| Source 5 | GP5 / ( GP3L ) | GP6 / ( GP3R ) |
| Source 6 | GP7 / ( GP4L ) | GP8 / ( GP4R ) |

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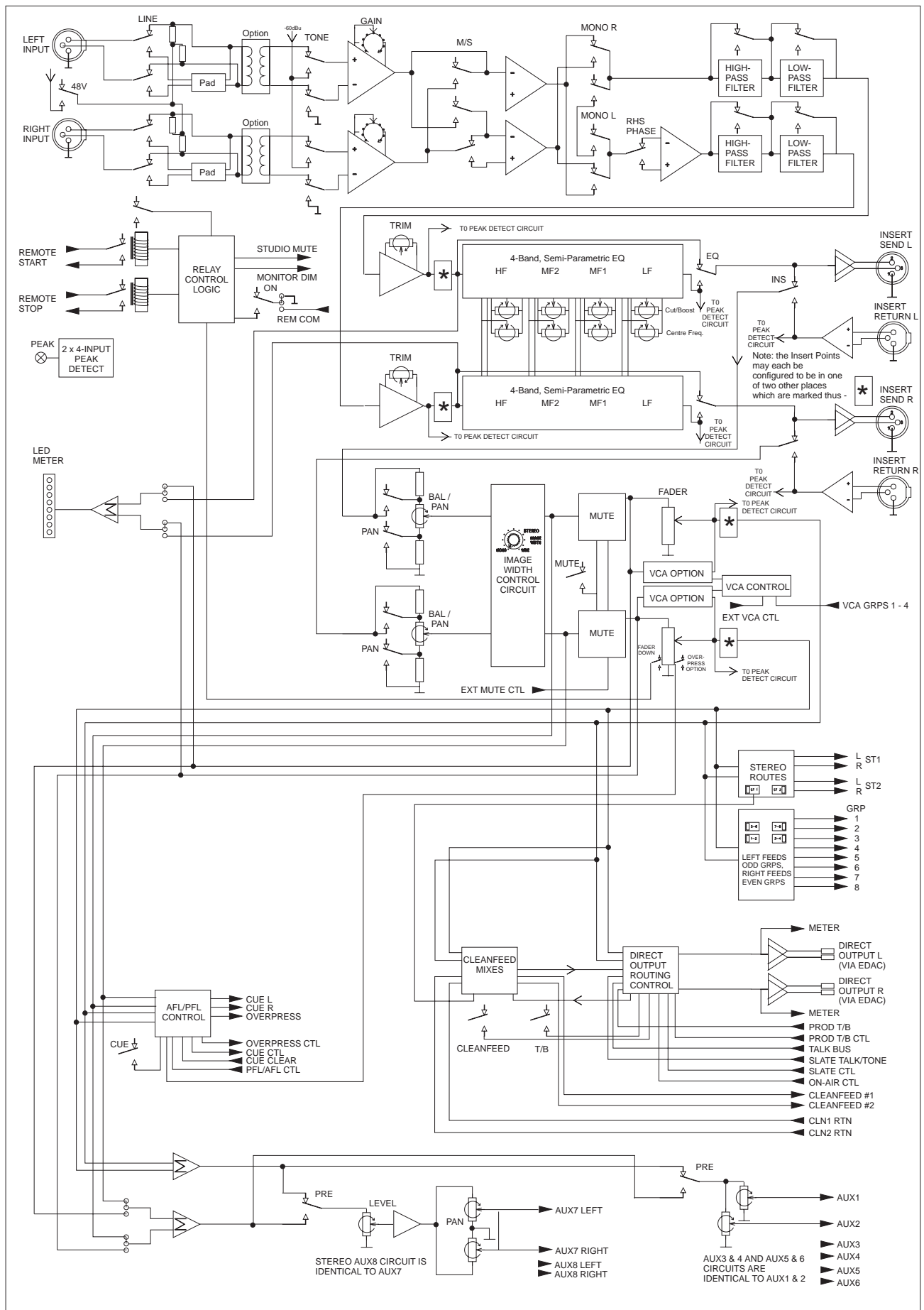
## **3. Block Diagrams**

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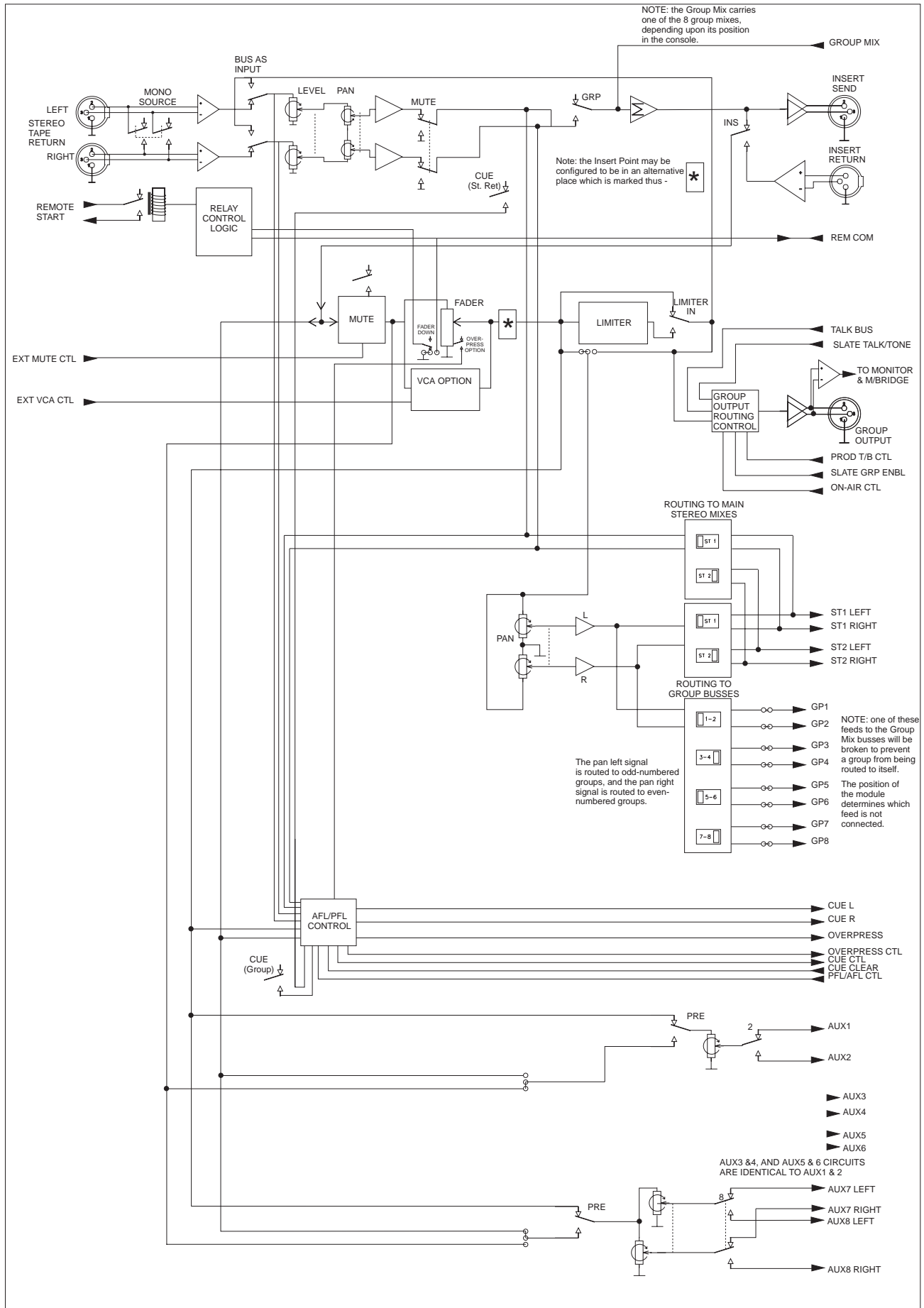
# Mono Input Block Diagram



# Stereo Input Block Diagram

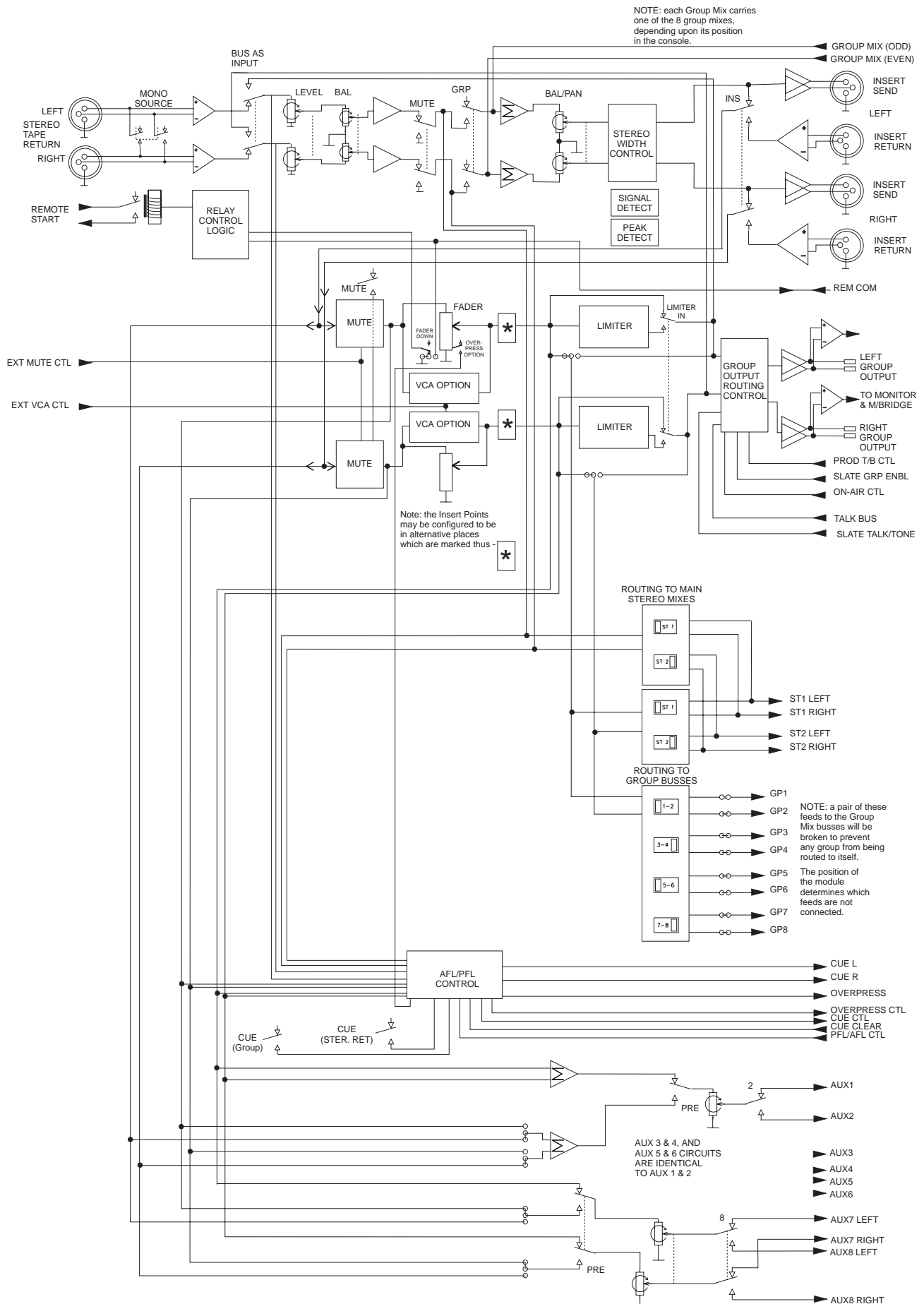


# Group Module Block Diagram

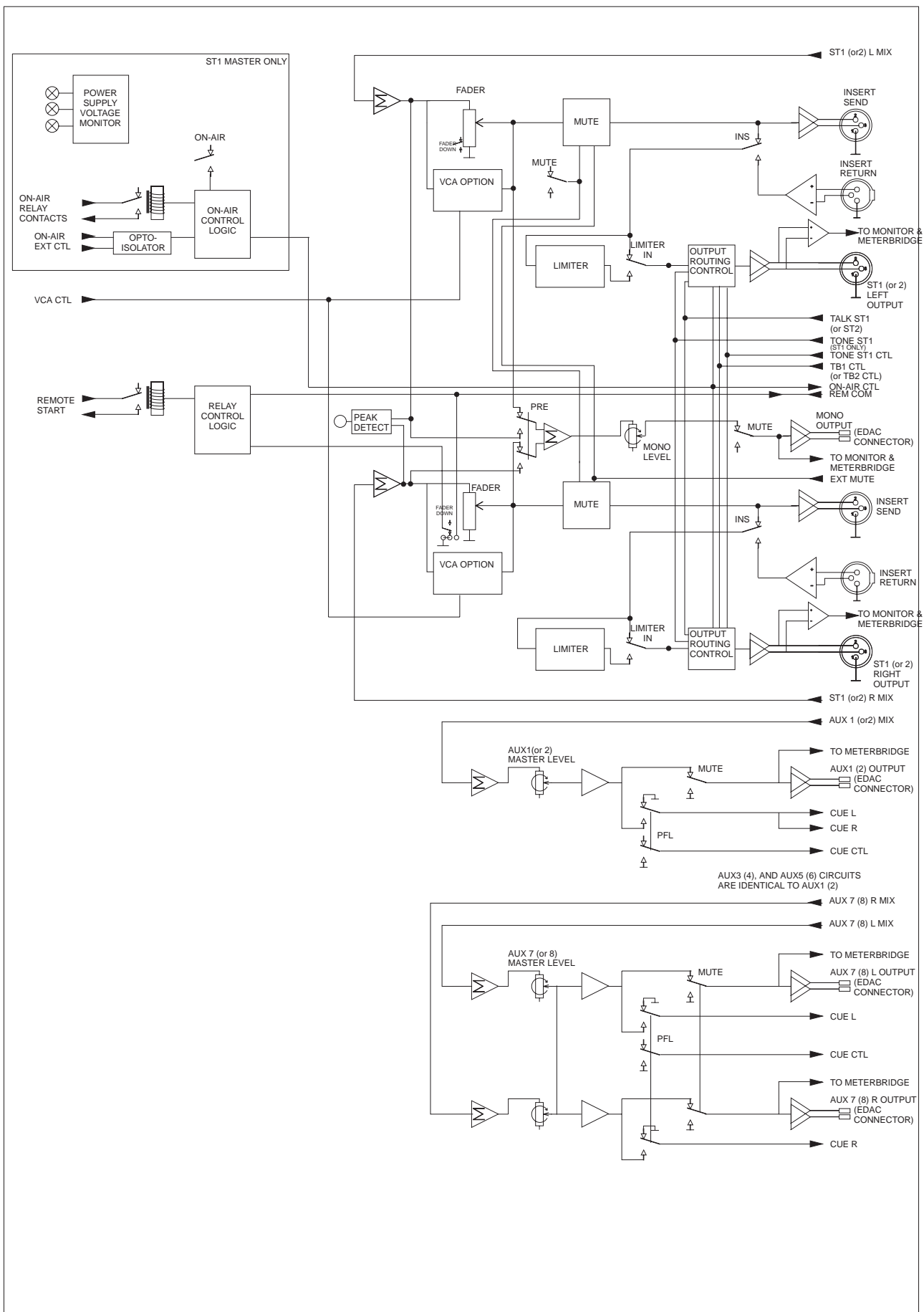




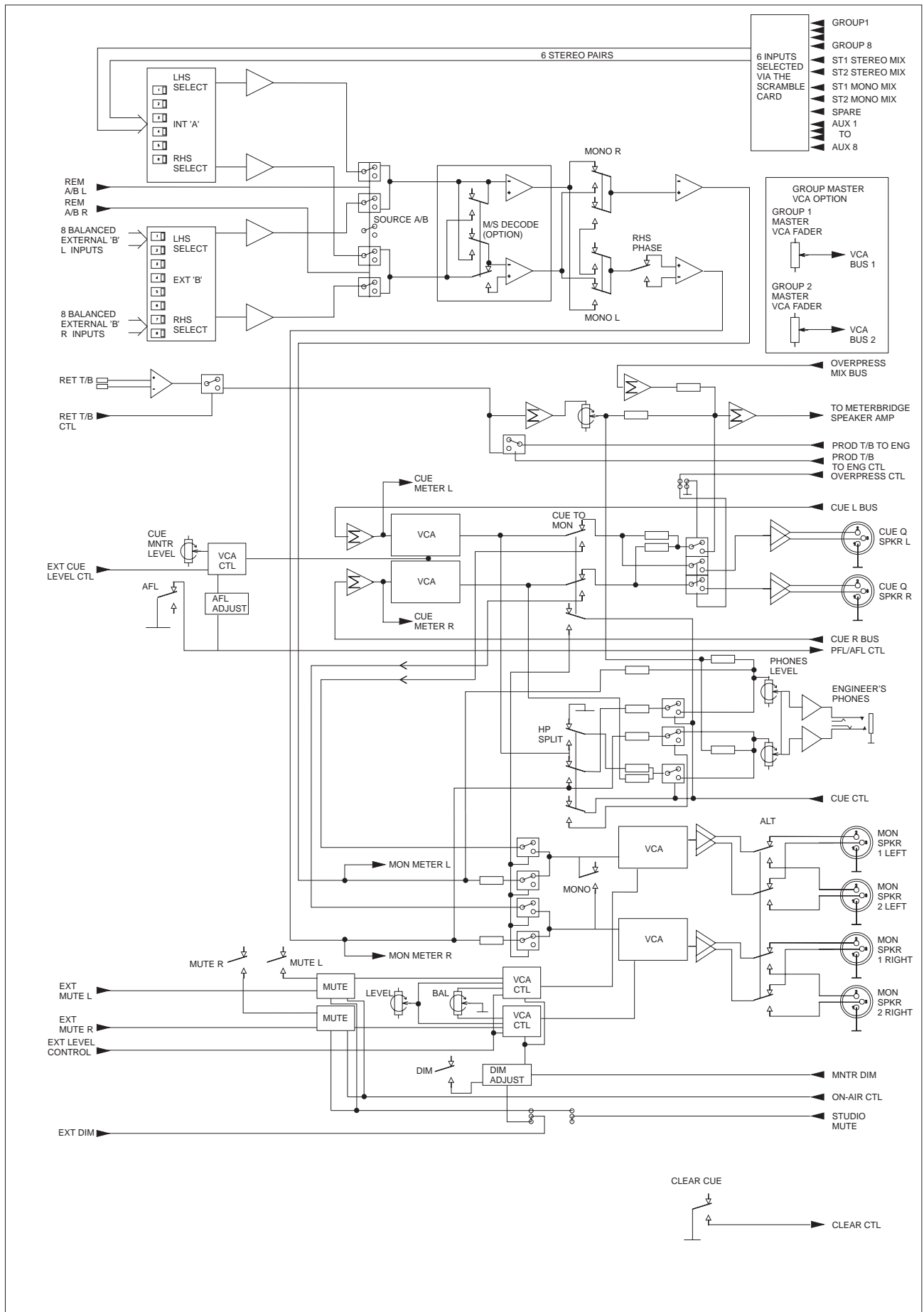
# Stereo Group Module Block Diagram



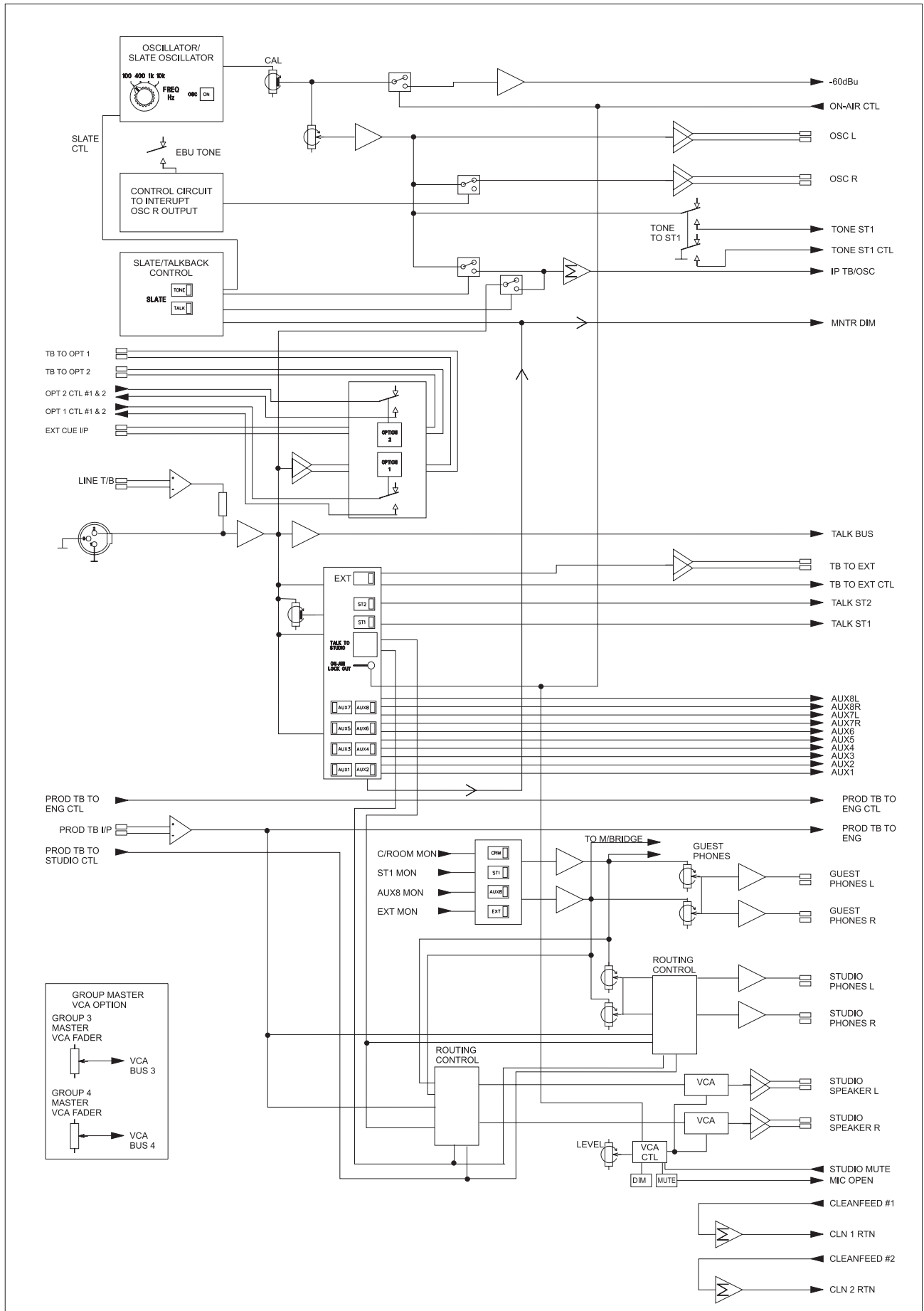
## ST1 /ST2 Master Block diagram



# Monitor Block Diagram



# Comms Block Diagram



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## **4. Functional Description**

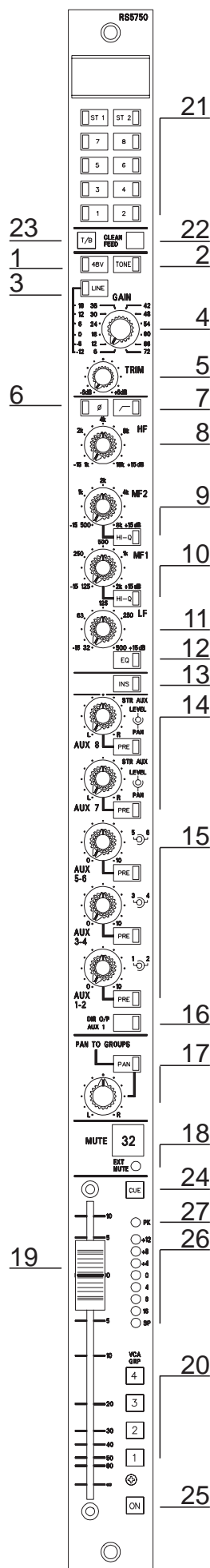
---

## Input

- ## ***Equaliser***

**8** The inner knob of the dual-concentric **HF** pot allows you to cut or boost the HF shelving filter by up to 15dB. The Cut-off frequency is sweepable, using the inner knob, between 1kHz and 16kHz.

- 9** The inner knob of the dual-concentric **MF2** pot allows you to cut or boost the High Mid-Range bell-response filter by up to 15dB. The Mid-point frequency is sweepable, using the inner knob, between 500Hz and 8kHz. The Q-factor of the filter is switchable between 1.2 and 2.3, via the associated **HI-Q** button.
- 10** The inner knob of the dual-concentric **MF1** pot allows you to cut or boost the Low Mid-Range bell-response filter by up to 15dB. The Mid-point frequency is sweepable, using the inner knob, between 125Hz and 2kHz. The Q-factor of the filter is switchable between 1.2 and 2.3, via the associated **HI-Q** button.
- 11** The inner knob of the dual-concentric **LF** pot allows you to cut or boost the LF shelving filter by up to 15dB. The Cut-off frequency is sweepable, using the inner knob, between 32Hz and 500Hz.
- 12** The EQ section may be switched in and out of circuit via the **EQ** switch. The switch illuminates to indicate that it is switched in.



## Insert Point

**13** When the **INS** (Insert) button is depressed, the signal path is routed via the insert return XLR. When the INS button is released the signal path is routed internally. Note that the signal is always available on the insert send XLR, irrespective of the position of the INS switch.

The Insert Point may be configured to be pre, post-EQ or post-fade, via an internal pcb-mounted switch and jumpers.

## Auxiliary Sends

**14** **Aux7** and **Aux8** are both Stereo Pairs. The dual-concentric pots control the level and also act as a pan control to position the signal within the stereo image. The sends may be configured, via the appropriate **PRE** switch, as pre or post-fade.

**15** **Aux1** to **Aux6** are controlled by 3 pairs of dual-concentric pots. They are also switchable pre or post-fade in pairs by the appropriate **PRE** switches.

**16** The **DIR O/P / AUX1** switch switches the Aux1 level pot into the direct output circuit; at the same time the Aux1 Output is fed with its full pre-level-control signal. This pot will control the post-fade channel signal, mor the cleanfeed output level when selected.

## Pan

**17** The Pan pot allows the input signal to be positioned within the stereo image of the main mix. The **PAN** switch, when depressed, routes the Left signal to odd-numbered Groups, and the Right signal to even-numbered groups. When the PAN switch is released the pre-pan signal is sent to all groups.

## Mute

The Mute section is located immediately after the high-pass filter.

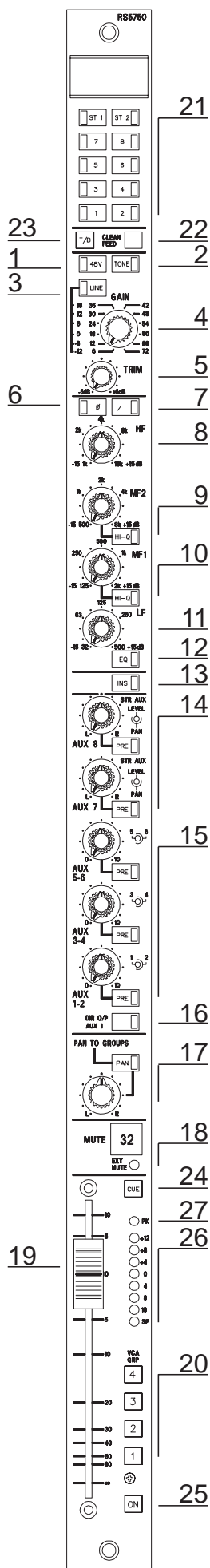
**18** The Mute may be activated by the **MUTE** switch (note that the channel ident number is printed on the switch), or by the remote mute signal which is presented on the 25-way d-type connector on the rear connector panel. The associated LED glows to indicate that the remote mute is active.

## Fader

**19** The Fader is placed immediately after the Mute Section. It gives 10dB of gain at its maximum setting.

## VCA Control (option)

**20** The control of the module's output level may be switched to allow the VCA Group Master Faders (which are located on the Monitor and Comms Modules) to



add, or subtract, an offset to the level set by the module's fader: this is done by use of the **VCA GRP 1, 2, 3 & 4** switches.

## Output Routing

**21** The module's output may be routed to any or all of the 8 group busses ( via the **1** to **8** switches), and or one or both of the **ST1** and **ST2** stereo master busses.

## Direct Output

The Direct Output XLR on the rear connector panel normally carries the channel's direct output, or may be replaced by the following signals:

- a cleanfeed output ( see next below)
- talkback from the overbridge mic XLR
- oscillator and slate oscillator output

## Cleanfeed

**22** There are two cleanfeed busses in the console: the cleanfeed1 bus and the cleanfeed2 bus. The cleanfeed1 bus carries a mono mix of the ST1 Master mix. To provide a mix-minus signal at the direct output XLR using the ST1 mix, you must depress the ST1 button and the **CLEANFEED** button.

If the CLEANFEED button is depressed and the ST1 button is released, the cleanfeed2 bus is used as the source of the mix-minus signal. The cleanfeed2 bus carries a mix from all the input modules which have only their CLEANFEED buttons but not their ST1 buttons depressed.

## Talkback

**23** If the **T/B** switch is depressed the talkback signal from the overbridge mic XLR is switched to the Direct Output.

## Cue System

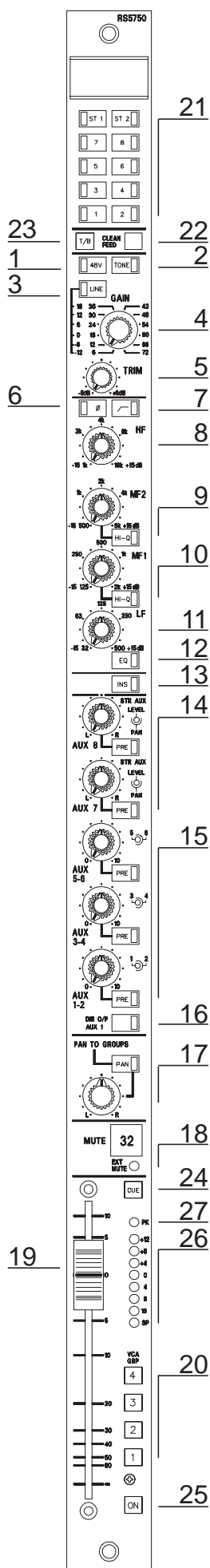
**24** The cue system is activated by pressing the **CUE** button. The CUE button may be operated in latched or momentary mode, depending upon how long you hold it down for. If you press and release within approximately 0.5 seconds the button will latch. If, on the other hand you press and hold for more than 0.5 seconds then the cue will not latch.

Note that there are some interlocks associated with the cue system. They are as follows:

When the cue switch is active, and the fader is in its fully-down position, the PFL signal will be put onto the Cue L & R busses irrespective of the AFL/PFL master setting on the Monitor Module.

The CUE button may be reset by moving the fader away from the fully-down position. Note that if the cue button is pressed when the fader is already away from the fully-down position the afl/pfl signal will be selected according to the position of the AFL/PFL master switch on the monitor module.





## Remote Start/Stop

Two sets of relay contacts to start/stop external machines are available on the rear connector panel d-type connector. These may be set to latching or pulsed operation via internal jumpers. Note that these relays only operate when Line Input is selected on the module. **Under no circumstances should mains voltages be placed on these contacts.**

**25** The **ON** switch works in conjunction with the fader's microswitch. The LED in the ON switch will illuminate at half brightness if the fader is fully down when the On button is pushed: this indicates that the remote start is armed. When the fader is moved away from the fully-down position the start relay will be activated and the LED in the ON switch will glow at full brightness. Alternatively, if the fader is moved away from the fully-down position before the ON button is pushed, the relay will operate as soon as the ON switch is pushed.

## Meter

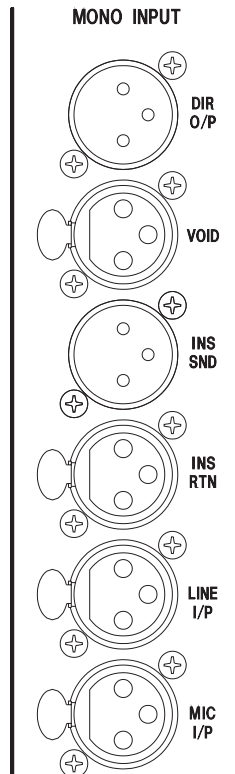
**26** The 8-segment LED meter may be set to pre-fade (post Mute) or pre-eq by an internal jumper.

**27** The 3-input **Peak** LED monitors pre-EQ, post-EQ and post-fade. If any of these points rises to 6dB below clipping the LED will illuminate.

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## Rear Connector Panel

The diagram on the left of this page is a copy of the appropriate section of the key to connector functions which is printed on one of the overbridge rear panels. This key applies to all those rear connector panels which are connected to mono input modules.



### Direct Output

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Insert Send

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Insert Return

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

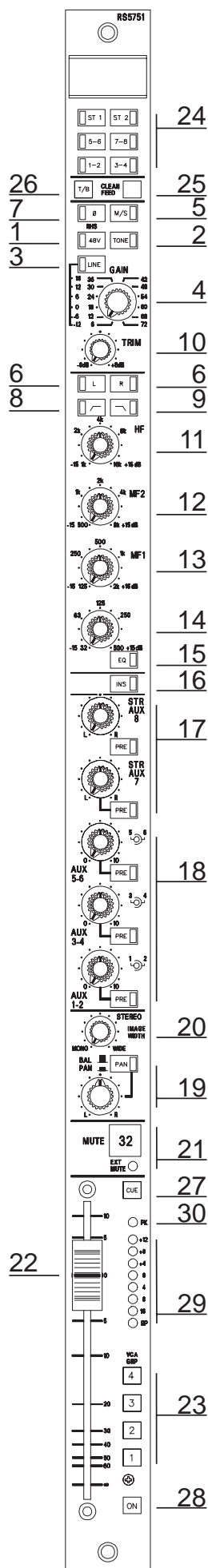
### Line Input

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Mic Input

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |





## Stereo Input

### Input

**1** The **48V** switch applies 48V Phantom power to the I/P XLRs on the rear connector panel. The switch illuminates to indicate that it is switched on. Note that phantom power is only applied to the I/P XLRs when Mic is selected.

**2** The **TONE** switch applies a -60dBu signal to the module's pre-amplifier circuit. This allows you to check the operation of the module. The switch illuminates to indicate that it is switched on.

**3** The **LINE** switch, when active, routes the I/P XLRs' signals via an attenuator. The switch illuminates to indicate that it is switched on. Phantom power is not available if LINE is selected.

**4** The multi-position **GAIN** switch selects the gain in 6dB steps. When the MIC I/P is selected the gain may be set from 6dB to 72 dB. When the LINE I/P is selected the gain may be set from -12dB to 54dB.

**5** The **M/S** switch provides M/S decoding in the event that M/S microphones are being used as the signal source.

**6** When the **L** and the **R** switches are both released the stereo pairs of the sources are routed normally. However if the L switch is depressed then the left signal is fed to both sides of the monitor circuit. Similarly the right signal is routed to both sides if the R. If both switches are depressed then a mix of left and right is fed to both sides of the monitor.

**7** The **Phase** of the right-hand input signal may be inverted by use of the **RHS**  $\emptyset$  (phase) switch. The switch illuminates to indicate that it is switched on.

**8** The High-Pass Filter is selected by depressing its switch. The switch illuminates to indicate that it is switched on. The filter has a slope of 18dB/Octave and a cut-off point of 100Hz.

**9** The Low-Pass Filter is selected by depressing its switch. The switch illuminates to indicate that it is switched on. The filter has a slope of 12dB/Octave and a cut-off point of 12kHz.

**10** The **TRIM** pot allows you to adjust the gain by +/- 6dB. In conjunction with the GAIN switch this allows you to adjust the overall gain to any desired figure within the available range.

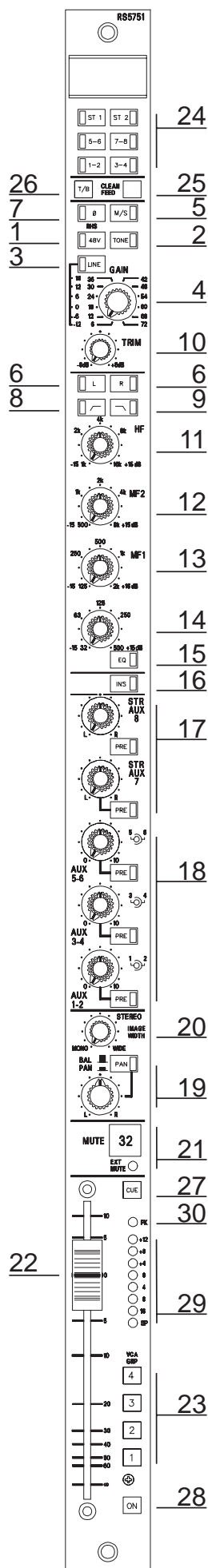
### Equaliser

The Equaliser is a 4-band semi-parametric design.

**11** The inner knob of the dual-concentric **HF** pot allows you to cut or boost the HF shelving filter by up to 15dB. The Cut-off frequency is sweepable, using the inner knob, between 1kHz and 16kHz.

**12** The inner knob of the dual-concentric **MF2** pot allows you to cut or boost the High Mid-Range bell-response filter by up to 15dB. The Mid-point frequency





on the 25-way d-type connector on the rear connector panel. The associated LED glows to indicate that the remote mute is active.

## Fader

**22** The Fader is placed immediately after the Mute Section. It gives 10dB of gain at its maximum setting.

## VCA Control (option)

**23** The control of the module's output level may be switched to allow the VCA Group Master Faders (which are located on the Monitor and Comms Modules) to add, or subtract, an offset to the level set by the module's fader: this is done by use of the **VCA GRP 1, 2, 3 & 4** switches.

## Output Routing

**24** The module's output may be routed to any or all of the 8 group busses ( via the **1-2, 3-4, 5-6** and **7-8** switches), and or one or both of the **ST1** and **ST2** stereo master busses.

## Direct Output (Optional)

The Direct Output (via an optional EDAC on the rear connector panel) may also carry the following signals:

- a cleanfeed output ( see next below)
- talkback from the overbridge mic XLR
- oscillator and slate oscillator output

## Cleanfeed

**25** There are two cleanfeed busses in the console: the cleanfeed1 bus and the cleanfeed2 bus. The cleanfeed1 bus carries a mono mix of the ST1 Master mix. To provide a mix-minus signal at the direct output XLR using the ST1 mix, you must depress the ST1 button and the **CLEANFEED** button.

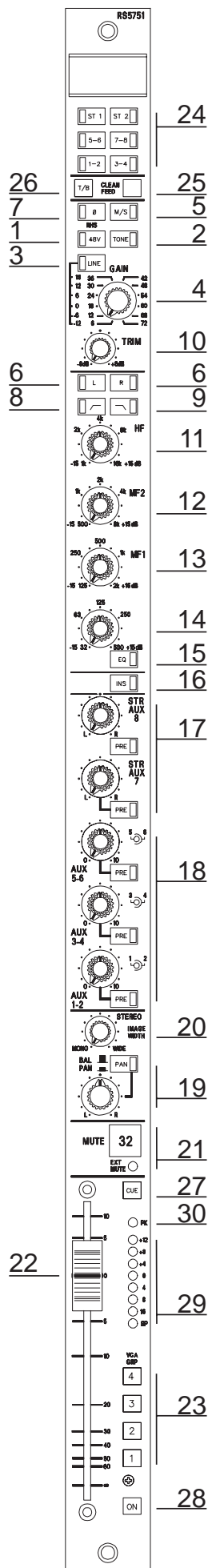
If the CLEANFEED button is depressed and the ST1 button is released, the cleanfeed2 bus is used as the source of the mix-minus signal. The cleanfeed2 bus carries a mix from all the input modules which have only their CLEANFEED buttons but not their ST1 buttons depressed.

## Talkback

**26** If the **T/B** switch is depressed the talkback signal from the overbridge mic XLR is switched to the Direct Output.

## Cue System

**27** The cue system is activated by pressing the **CUE** button. The CUE button may be operated in latched or momentary mode, depending upon how long you hold



it down for. If you press and release within approximately 0.5 seconds the button will latch. If, on the other hand you press and hold for more than 0.5 seconds then the cue will not latch.

Note that there are some interlocks associated with the cue system. They are as follows:

When the cue switch is active, and the fader is in its fully-down position, the PFL signal will be put onto the Cue L & R busses irrespective of the AFL/PFL master setting on the Monitor Module.

The CUE button may be reset by moving the fader away from the fully-down position. Note that if the cue button is pressed when the fader is already away from the fully-down position the afl/pfl signal will be selected according to the position of the AFL/PFL master switch on the monitor module.

## Remote Start/Stop

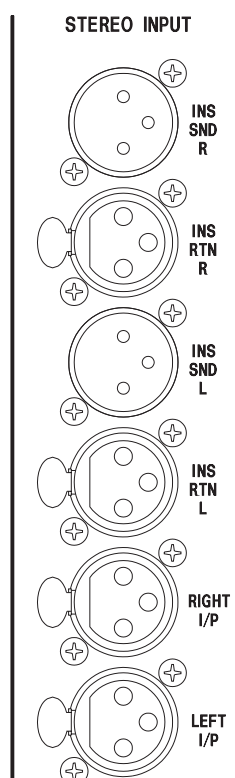
Two sets of relay contacts to start/stop external machines are available on the rear connector panel d-type connector. These may be set to latching or pulsed operation via internal jumpers. Note that these relays only operate when Line Input is selected on the module. **Under no circumstances should mains voltages be placed on these contacts.**

**28** The ON switch works in conjunction with the fader's microswitch. The LED in the ON switch will illuminate at half brightness if the fader is fully down when the On button is pushed: this indicates that the remote start is armed. When the fader is moved away from the fully-down position the start relay will be activated and the LED in the ON switch will glow at full brightness. Alternatively, if the fader is moved away from the fully-down position before the ON button is pushed, the relay will operate as soon as the ON switch is pushed.

## Meter

**29** The 8-segment LED meter may be set to pre-fade (post Mute) or pre-eq by an internal jumper.

**30** The 2 X 4-input **Peak** LED monitors pre-EQ, post-EQ, post-insert return and post-fade. If any of these points rises to 6dB below clipping the LED will illuminate.



## Rear Connector Panel

The diagram on the left of this page is a copy of the appropriate section of the key to connector functions which is printed on one of the overbridge rear panels. This key applies to all those rear connector panels which are connected to stereo input modules.

### Insert Send

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Insert Return

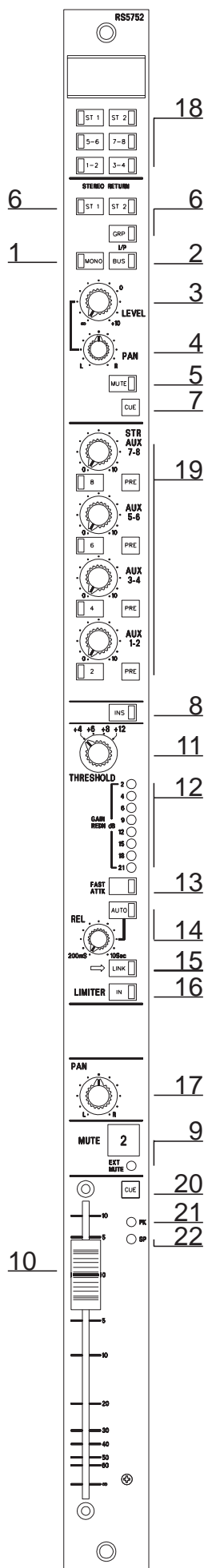
|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Input

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |







## Mono Group

There are up to eight Mono Group Modules in the console. The Mono Group Module comprises a Group Master section and a Stereo Return section.

### Stereo Return

#### Input

The stereo return inputs are via two XLR sockets on the rear connector panel.

- 1 The Left and Right signals may be mixed to give a mono sum signal by depressing the **MONO** switch.
- 2 When the **BUS** switch is depressed the inputs to the stereo return circuit are disabled and are replaced by the group output signal itself.
- 3 The input sensitivity is controlled by the **LEVEL** pot.
- 4 The **PAN** pot acts as a Pan control only if **MONO** is depressed, or if **BUS** is depressed. If they are not, and therefore the Stereo XLRs are being used as a stereo pair, then the **PAN** pot acts as a Balance control with a gain of +3dB and a drop of -10dB at either end.
- 5 The post-pan signal is muted by the **MUTE** switch

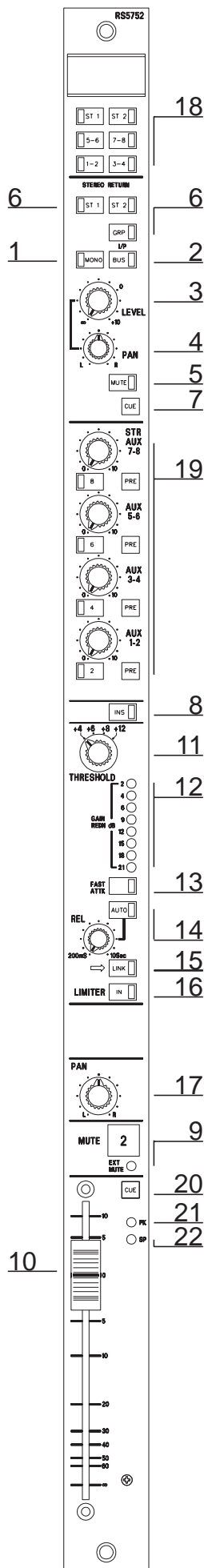
#### Output Routing

- 6 The post-mute stereo signal may then be routed by the appropriate switches to: the **ST1** mix, the **ST2** mix, and/or the **GROUP** for the module on which it is located.

Note that the **BUS** and the **GRP** switch are interlocked: if you depress both then the **BUS** switch takes priority, disabling the **GROUP** switch.

#### Cue System

- 7 When the **CUE** button is depressed either the pre-level-control signal or the post-mute signal, depending on the position of the **PFL/AFL** switch on the Monitor Module, is fed to the cue system. The **CUE** button may be operated in latched or momentary mode, depending upon how long you hold it down for. If you press and release within approximately 0.5 seconds the button will latch. If, on the other hand you press and hold for more than 0.5 seconds then the cue will not latch.



## Group Master

### Insert Point

The Group Mix bus is fed to an internal switch (s30) which allows you to select the insert point as being pre or post-fade. The default factory setting is pre-fade.

The Insert Send is via an XLR on the rear connector panel.

**8** When the **INS** (Insert) button is depressed, the signal path is routed via the insert return XLR. When the INS button is released the signal path is routed internally. Note that the signal is always available on the insert send XLR, irrespective of the position of the INS switch.

### Mute

Assuming that the Group Master is configured such that the Insert point is pre-fade, the post-insert -point signal is fed to the Mute circuit.

**9** The Mute may be activated by the **MUTE** switch (note that the group number is printed on the switch), or by the remote mute signal which is presented on the 9-way d-type connector on the rear connector panel. The associated LED glows to indicate that the remote mute is active.

### Fader

**10** The Fader is placed immediately after the Mute Section. It gives 10dB of gain at its maximum setting.

A set of relay contacts to start an external machine is available on the rear connector panel d-type connector. These contacts close when the fader is away from the fully-down position. **Under no circumstances should mains voltages be placed on these contacts.**

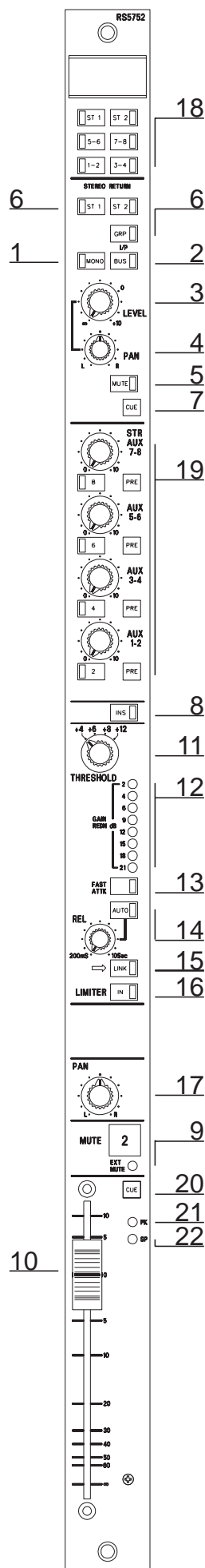
### Limiter

**11** The 4-position rotary **THRESHOLD** switch sets the signal level (in dBr) at which the limiter starts operating.

**12** The 8-LED **GAIN REDUCTION** meter shows the extent to which the limiter is reducing the gain.

**13** The **FAST ATTACK** switch gives a choice of attack times: 10msec when the switch is released, 0.5msec when the switch is depressed.

**14** The **RELEASE** control allows you to select a limiter release time from 200msecs to 10secs. The **AUTO** switch gives a preset release time of one second with a 2-stage release action.



**15** The Limiter may be linked to the next one on its right hand side by pressing the **LINK** button (on the Group number 8 master this has no effect). If limiters are linked any signal which causes one limiter to start acting will also cause the other linked limiters to act.

**16** The **LIMITER IN** switch places the limiter in-circuit when it is depressed.

## Output Routing

**17** The post-limiter signal is routed to the **PAN** pot. (Note that the pre-limiter signal may be routed to the pan pot by reconfiguring the appropriate internal jumper - see the installation section of this manual)

**18** The panned signal is then routed to the ST1 and ST2 master stereo mixes via the **ST1** and **ST2** switches. It may also be routed to the other Group busses via the **1-2**, **3-4**, **5-6** and **7-8** switches. The left signal is routed to odd-numbered groups and the right signal to even-numbered groups. Note that each group is disabled from routing to itself.

The post-limiter signal is also routed to the Group Output XLR on the rear connector panel

## Aux Outputs

**19** The post-fade or pre-fade signal, depending on the position of the appropriate **PRE** switch, is routed to each of the 4 **Level** controls. Each control normally feeds its odd-numbered aux bus, however this feed is switched to its even-numbered counterpart by use of the appropriately numbered switch i.e. **2, 4, 6, 8**.

Note: the **PRE** switch may source either the pre-fade or the pre-mute signal depending upon internal jumpers - see installation section.

## Cue System

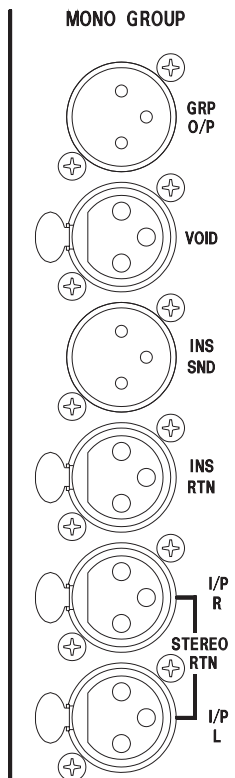
**20** The cue system is activated by pressing the **CUE** button. The **CUE** button may be operated in latched or momentary mode, depending upon how long you hold it down for. If you press and release within approximately 0.5 seconds the button will latch. If, on the other hand you press and hold for more than 0.5 seconds then the cue will not latch.

The **CUE** button may be reset by moving the fader away from the fully-down position. Note that if the cue button is pressed when the fader is already away from the fully-down position the **AFL/PFL** signal will be selected according to the position of the **AFL/PFL** master switch on the monitor module.

## Metering

**21** The Peak Detect circuit monitors the output of the group mix amplifier and the post-fader signal. If either of these points comes within 6dB of clipping then the **PEAK** LED will illuminate.

**22** The signal present circuit monitors the output of the mix amp. The **SP** LED illuminates when a signal is present on the Group Mix bus.



## Rear Connector Panel

The diagram on the left of this page is a copy of the appropriate section of the key to connector functions which is printed on one of the overbridge rear panels. This key applies to all those rear connector panels which are connected to Master Group modules.

### Group Output

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Insert Send

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Insert Return

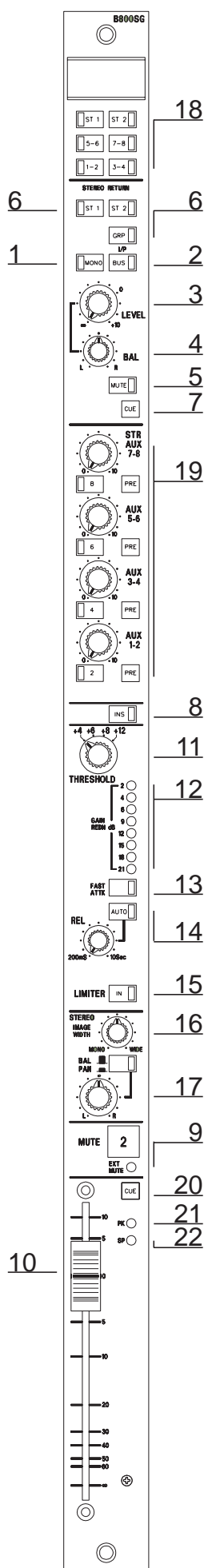
|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Stereo Return R

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Stereo Return L

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |



## Stereo Group

There are up to four Stereo Group Modules in the console. The Stereo Group Module comprises a Group Master section and a Stereo Return section.

### Stereo Return

#### Input

The stereo return inputs are via two XLR sockets on the rear connector panel.

- 1 The Left and Right signals may be mixed to give a mono sum signal by depressing the **MONO** switch.
- 2 When the **BUS** switch is depressed the inputs to the stereo return circuit are disabled and are replaced by an odd & even-numbered pair of group output signals.
- 3 The input sensitivity is controlled by the **LEVEL** pot.
- 4 The **BALANCE** pot acts as a Pan control if **MONO** is depressed. If it is not, and therefore the Stereo XLRs are being used as a stereo pair, then the **BALANCE** pot acts as a Balance control with a gain of +3dB and a drop of -10dB at either end.
- 5 The post-balance signals are muted by the **MUTE** switch

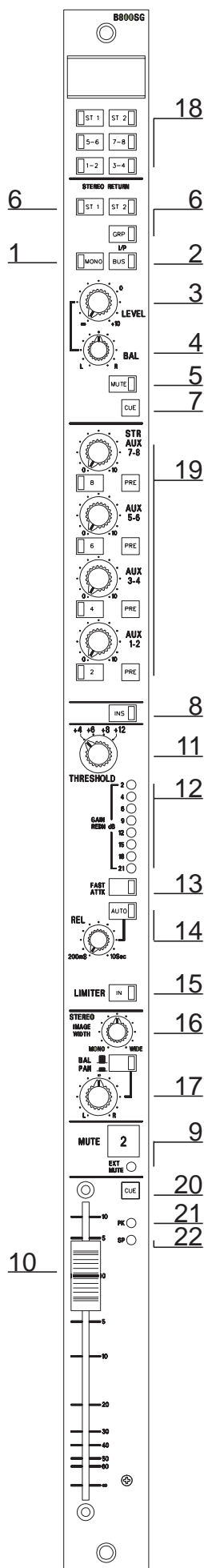
#### Output Routing

- 6 The post-mute stereo signal may then be routed by the appropriate switches to: the **ST1** mix, the **ST2** mix, and/or the **GROUP** for the module on which it is located.

Note that the **BUS** and the **GRP** switch are interlocked: if you depress both then the **BUS** switch takes priority, disabling the **GROUP** switch.

#### Cue System

- 7 When the **CUE** button is depressed either the pre-level-control signal or the post-mute signal, depending on the position of the PFL/AFL switch on the Monitor Module, is fed to the cue system. The **CUE** button may be operated in latched or momentary mode, depending upon how long you hold it down for. If you press and release within approximately 0.5 seconds the button will latch. If, on the other hand you press and hold for more than 0.5 seconds then the cue will not latch.



## Group Master

### Insert Point

The Group Mix bus is fed to internal switches (s30 & s31) which allow you to select the insert point as being pre or post-fade. The default factory setting is pre-fade.

The Insert Sends are via XLRs on the rear connector panel.

**8** When the **INS** (Insert) button is depressed, the signal path is routed via the insert return XLRs. When the INS button is released the signal path is routed internally. Note that the signals are always available on the insert send XLRs, irrespective of the position of the INS switch.

### Mute

Assuming that the Group Master is configured such that the Insert point is pre-fade, the post-insert -point signal is fed to the Mute circuit.

**9** The Mute may be activated by the **MUTE** switch, or by the remote mute signal which is presented on the 9-way d-type connector on the rear connector panel. The associated LED glows to indicate that the remote mute is active.

### Fader

**10** The Fader is placed immediately after the Mute Section. It gives 10dB of gain at its maximum setting.

A set of relay contacts to start an external machine is available on the rear connector panel d-type connector. These contacts close when the fader is away from the fully-down position. **Under no circumstances should mains voltages be placed on these contacts.**

### Limiter

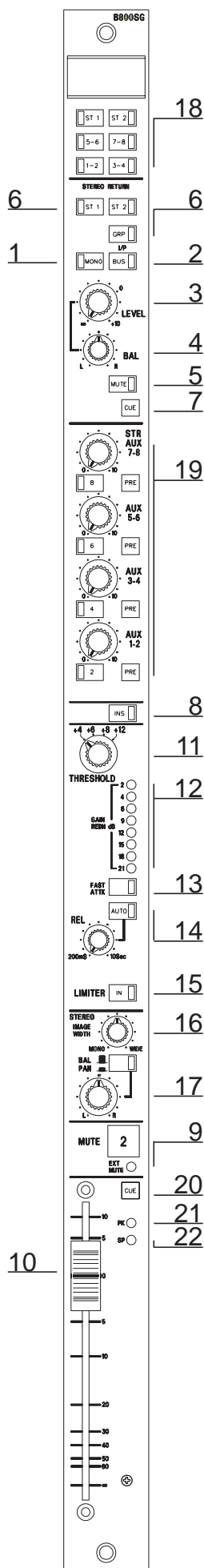
**11** The 4-position rotary **THRESHOLD** switch sets the signal level (in dBr) at which the limiter starts operating.

**12** The 8-LED **GAIN REDUCTION** meter shows the extent to which the limiter is reducing the gain.

**13** The **FAST ATTACK** switch gives a choice of attack times: 10msec when the switch is released, 0.5msec when the switch is depressed.

**14** The **RELEASE** control allows you to select a limiter release time from 200msecs to 10secs. The **AUTO** switch gives a preset release time of one second with a 2-stage release action.

**15** The **LIMITER IN** switch places the limiter in-circuit when it is depressed.



## Output Routing

**16** The **IMAGE WIDTH** Control allows the stereo image to be varied from Mono, through normal Stereo, to Wide Stereo. This pot has an integral push-action switch which switches the width control circuit on and off.

**17** The post-limiter signal is routed to the **BAL/PAN** pot. The associated switch selects the BAL or PAN function.

**18** The panned signal is then routed to the ST1 and ST2 master stereo mixes via the **ST1** and **ST2** switches. It may also be routed to the other Group busses via the **1-2, 3-4, 5-6** and **7-8** switches. The left signal is routed to odd-numbered groups and the right signal to even-numbered groups. Note that each group is disabled from routing to itself.

The post-limiter signal is also routed to the Group Output EDAC connector.

## Aux Outputs

**19** The post-fade or pre-fade signal, depending on the position of the appropriate **PRE** switch, is routed to each of the 4 **Level** controls. Each control normally feeds its odd-numbered aux bus, however this feed is switched to its even-numbered counterpart by use of the appropriately numbered switch i.e. **2, 4, 6, 8**. Note that both AUX7 and AUX8 are stereo pairs.

Note: the PRE switch may source either the pre-fade or the pre-mute signal depending upon internal jumpers - see installation section.

## Cue System

**20** The cue system is activated by pressing the **CUE** button. The CUE button may be operated in latched or momentary mode, depending upon how long you hold it down for. If you press and release within approximately 0.5 seconds the button will latch. If, on the other hand you press and hold for more than 0.5 seconds then the cue will not latch.

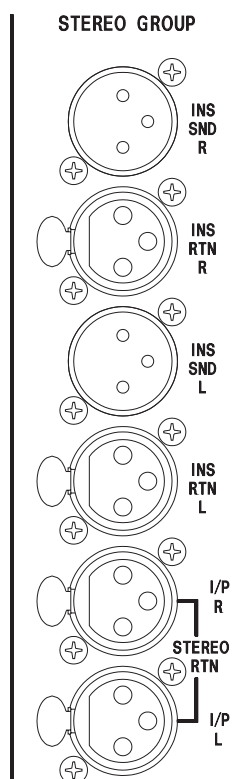
The CUE button may be reset by moving the fader away from the fully-down position. Note that if the cue button is pressed when the fader is already away from the fully-down position the AFL/PFL signal will be selected according to the position of the AFL/PFL master switch on the monitor module.

## Metering

**21** The Peak Detect circuit monitors the output of the group mix amplifier and the post-fader signal. If either of these points comes within 6dB of clipping then the **PEAK** LED will illuminate.

**22** The signal present circuit monitors the output of the mix amp. The **SP** LED illuminates when a signal is present on the Group Mix bus.





## Rear Connector Panel

The diagram on the left of this page is a copy of the appropriate section of the key to connector functions which is printed on one of the overbridge rear panels. This key applies to all those rear connector panels which are connected to Master Group modules.

### Insert Send L & R

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Insert Return L & R

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Stereo Return R

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Stereo Return L

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

# Master ST1 & ST2 Modules

Each of the Master Modules has independent facilities for their own sets of outputs. The only features which are not duplicated are the PSU status LEDs and the On-Air switch, which are on ST1.

## PSU Status LEDs

**1** The three LEDs provide visual confirmation that the 48V phantom power +17V & -17V Audio Supplies, and the +5V Logic Supply are all present.

## ON-AIR Switch/Indicator

**2** The **ON-AIR** switch, when activated, will close a set of normally-open relay contacts. It also disables the oscillator and some talkback facilities provided by the Comms Module.

The On-Air switch may also be operated externally via the provided opto-isolator.

## Aux Master Section

The Aux Master controls are located on both of the ST1 and ST2 Master Modules.

**3** Each Aux Master has a rotary **level-control** and a MUTE switch. The AFL button allows you to listen to the After-Fade Signal via the Cue System.

## Insert Points

**4** When the **INS** (Insert) button is depressed, the signal paths (left and right) are routed via the insert return XLRs (there is a separate XLR for the left and the right signal). When the INS button is released the signal paths are routed internally. Note that the signals are always available on the insert send XLRs, irrespective of the position of the INS switch.

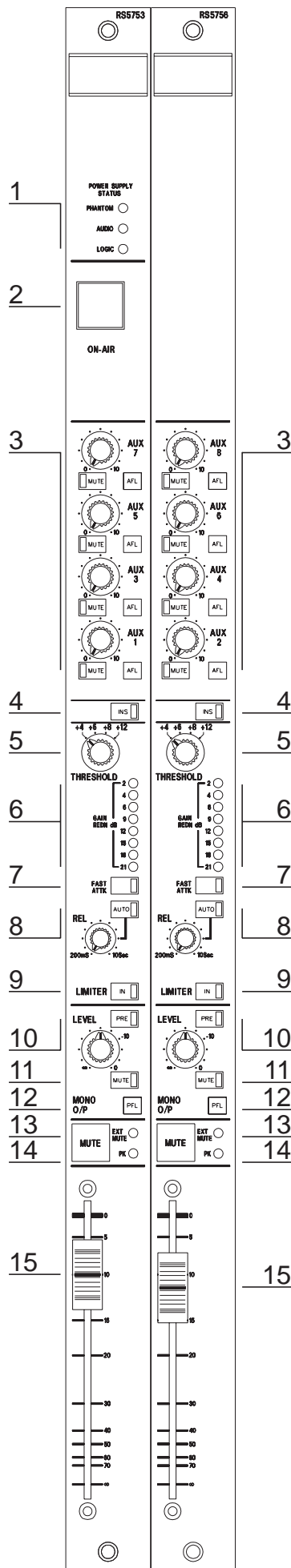
## Limiter

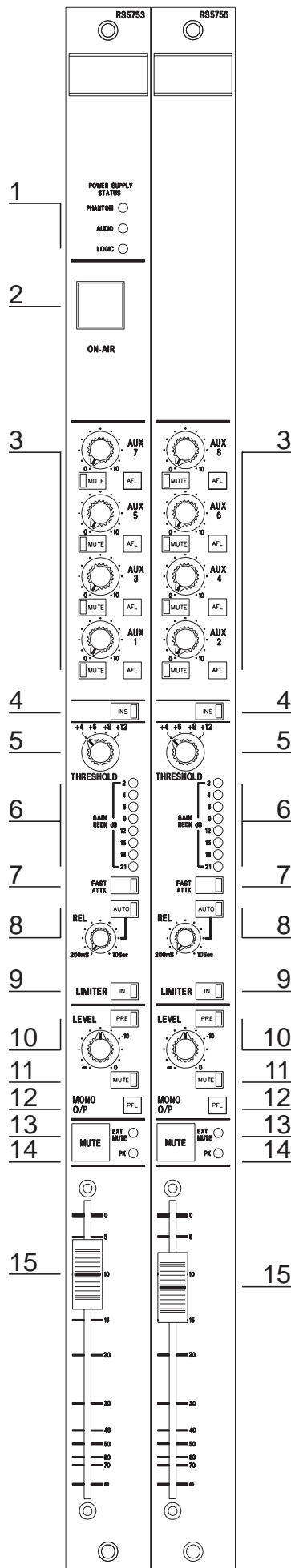
The limiter is located post-insert.

**5** The 4-position rotary **THRESHOLD** switch sets the signal level (in dBr) at which the limiter starts operating.

**6** The 8-LED **GAIN REDUCTION** meter shows the extent to which the limiter is reducing the gain.

**7** The **FAST ATTACK** switch gives a choice of attack times: 10msec when the switch is released, 0.5msec when the switch is depressed.





**8** The **RELEASE** control allows you to select a limiter release time from 200msecs to 10secs. The **AUTO** switch gives a preset release time of one second with a 2-stage release action.

**9** The **LIMITER IN** switch places the limiter in-circuit when it is depressed.

## Mono Outputs

The mono signal does not pass through the Insert Point or the Limiter.

**10** The Mono Output has a rotary **LEVEL** control which has a maximum gain of 0dB. This may be fed by a pre-fade signal or a post-fade signal (i.e. pre or post-fade the stereo master fader) by use of the **PRE** switch.

**11** The Output may also be muted by the **MUTE** switch.

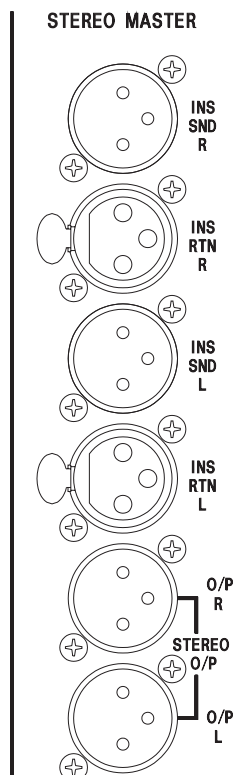
**12** The **PFL** switch allows you to listen to the Mono Output signal via the cue system.

## Output Level Control

**13** The main stereo outputs are muted via the **MUTE** switch. The mute switch may also be activated externally: when this is the case the associated **EXT MUTE** LED also illuminates.

**14** The **PEAK** LED monitors both the left and right mix bus signals at a position post-mix-amp and pre-fader. The peak LED will illuminate if either signal goes above 6dB below clipping

**15** The Stereo Master **Fader** is located located post mix-amp and pre mute.



## Rear Connector Panel

The diagram on the left of this page is a copy of the appropriate section of the key to connector functions which is printed on one of the overbridge rear panels. This key applies to both rear connector panels which are connected to the Stereo Master modules.

### Insert Send L

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Insert Return R

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Insert Send R

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Insert Return L

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Stereo Output R

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

### Stereo Output L

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |



# Monitor Module

## Monitor Sources

**1** The **SOURCE A/B** switch selects either the DESK 'A' or the EXTERNAL 'B' bank of switches as the monitor source. The switching may also be done externally via separate control lines for the left and right signals. The **EXT L** and **EXT R** LEDS illuminate when this is the case.

## External Monitor Sources

**2** The **EXTERNAL 'B'** bank of switches allows you to select 1 of 8 external inputs as the external monitor source. The external source inputs are via the 90-way EDAC connectors (see section 2 of this manual). The switches are mutually exclusive.

The **SOURCE A/B** switch must be depressed (the switch will illuminate when this is the case) to select the EXTERNAL 'B' bank of switches.

There is a scribble-strip next to the switches for convenience.

## Internal Monitor Sources

**3** The **DESK 'A'** bank of switches allows you to select 1 of 6 internal signals as the internal monitor source. The 6 are selected via the scramble card in the console (see section 2 of this manual). The six signals may be chosen from the following list:

- Group 1 to Group 8
- The Main Stereo Mixes of the ST1 and the ST2 Modules
- The Mono Mixes of the ST1 and the ST2 Modules
- Aux1 to Aux8

There is also a spare feed which may be used to monitor any suitable point in the console.

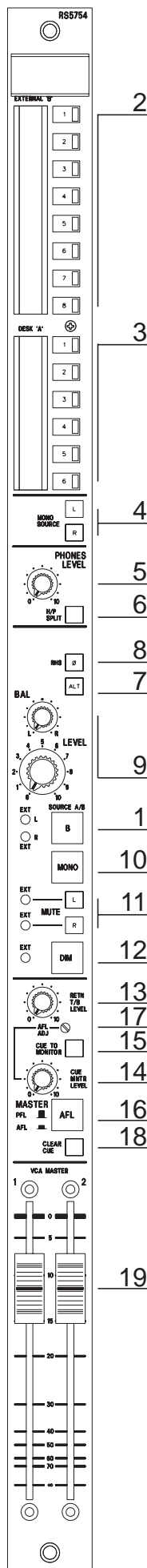
The **SOURCE A/B** switch must be released to select the INTERNAL 'A' bank of switches.

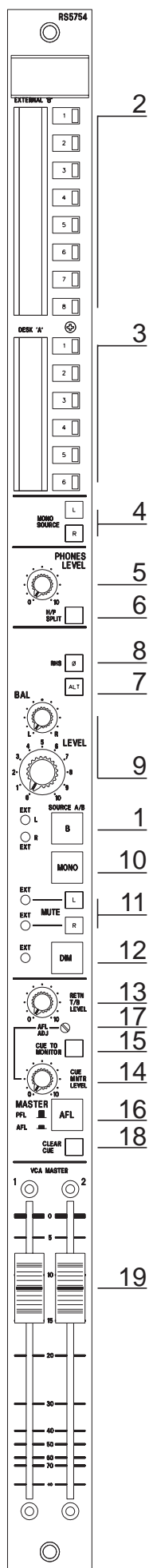
There is a scribble-strip next to the switches for convenience.

The factory default setting is detailed in section 2 of this manual.

## Mono/Stereo Sources

**4** When the **MONO SOURCE L** and the **MONO SOURCE R** switches are both released the stereo pairs of the sources are routed normally. However if the **MONO SOURCE L** switch is depressed then the left signal is fed to both sides of the monitor circuit. Similarly the right signal is routed to both sides if the **MONO**





SOURCE R. switch is pressed. If both switches are pressed then a mix of left and right is fed to both sides of the monitor.

## Outputs

The Monitor System outputs its signals to two pairs of Monitor Speaker Outputs and to a Headphones Output. These outputs are all located on the rear connector panel.

## Headphones

5 The headphones level is controlled by the **PHONES LEVEL** pot.

6 If the **H/P SPLIT** switch is depressed, and a cue is operated from anywhere on the console, the headphone monitor sums the left and right signals of the monitored signal, and sends it to the left side of the headphones. The Cue signal is fed to the right side of the headphones.

## Monitor Speakers

7 There are two sets of monitor speakers. Monitor Speakers 1 are normally selected but Monitor Speakers 2 may be selected by depressing the **ALT** switch.

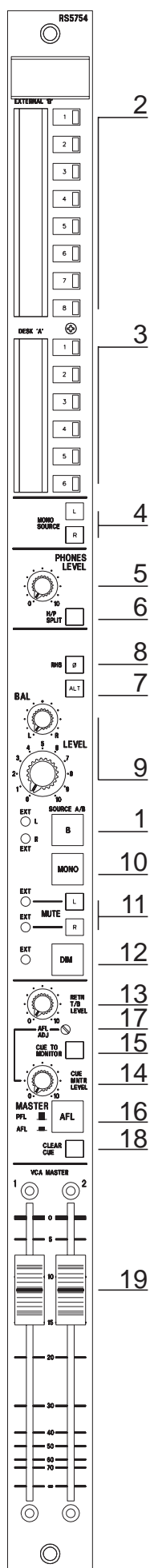
8 The phase of the right signal (of whichever set is selected) may be reversed by depressing the Phase ( $\emptyset$ ) switch.

9 The overall output level of the monitor speakers is controlled by the **LEVEL** pot, whilst the relative level between left and right is controlled by the **BALANCE** pot.

10 The left and right signals may be summed and fed to both the left and right speakers by depressing the **MONO** switch.

11 The left and right monitor signals may be muted by the **MUTE L** and **MUTE R** switches. They may also be muted under external control via the control lines which are available on the EXT LOGIC 25-way d-type connector: when these are used the appropriate **EXT LEDs** illuminate.

12 The left and right monitor signals may also be dimmed by use of the **DIM** switch. The amount that the signal may be dimmed is variable between 0 and -30dB. This is set by the preset pot VR7. If dimming is caused by anything other than use of this switch, e.g., use of talkback, then the **EXT Dim LED** illuminates.



## The Cueing System

A Cue Speaker fitted into the overbridge is provided as standard. It has its own level control. The Cue Speaker is fed with Overpress Cue signals (if the Overpress Option is fitted), the Return Talkback signal and, if the relevant internal jumpers are configured appropriately, a mono sum of the Cue L and R signals: this mono sum is overridden by the Overpress facility (if it is fitted).

**13** The Return Talkback level is adjusted via the **RETN T/B LEVEL** pot.

**14** A stereo pair of Cue Speaker outputs are also provided on the rear connector panel. The output level of these outputs is controlled by the **CUE MNTR LEVEL** pot.

The Cue speaker outputs carry a mix of any PFLs / AFLs via the Cue L and R busses. These signals will be overridden by the Overpress facility (if fitted), provided that the relevant internal jumpers are configured appropriately.

**15** The Cue L and R signals may be routed away from the Cue Speakers Outputs and towards the Monitor Speakers Outputs by depressing the **CUE TO MONITOR** switch

**16** The Cueing system may be set to monitor PFL or AFL signals from the various CUE switches on the console. This is done via the **MASTER AFL** switch.

**17** Note that when AFL is selected, the **AFL ADJ** preset pot is switched into operation. This preset pot allows you to add or subtract a suitable gain offset to that provided by the CUE MNTR LEVEL pot.

**18** The various Cue switches may be electronically latched and unlatched by toggling the individual switches. They may in addition all be unlatched via the **CLEAR CUE** switch. Note that the CLEAR CUE switch illuminates when one or more cues are active, and the CUE TO MONITOR switch is depressed.

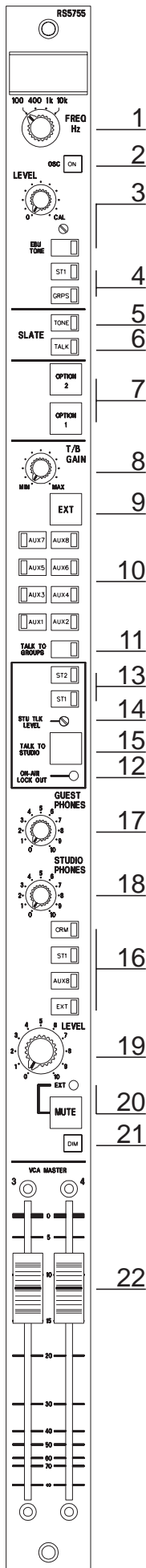
## Group VCA Master Faders

**19** The VCA Group Master Faders send the appropriate control voltages to the VCAs on the individual Input Modules. VCA Group Master Faders 1 and 2 are on this module, and numbers 3 and 4 are on the Communications Module.





# Communication Module



## Oscillator

**1** The internal oscillator may be set to one of 4 different frequencies by the **FREQ** control.

**2** The oscillator runs only when the **ON** switch is depressed. The switch illuminates to indicate that it is switched on.

**3** The oscillator signal is routed through the **CAL** (calibrate) preset pot. This should not require adjustment. This post-adjust signal is routed to the internal tone bus and also to two sets of balanced outputs which are available on the rear connector panel's EDAC connector (OSC L and OSC R). These balanced outputs are fed via the **LEVEL** control. The OSC L output may also be made to switch off for 100msec every 3 seconds (nominal times): this is done via the **EBU TONE** switch.

Note that the internal tone bus is disabled when the ON-AIR switch on the ST1 Master Module is active.

**4** The post-level-control oscillator signal is also routed via the **ST1** switch to the ST1 Stereo Outputs. Similarly the post-level-control oscillator signal is also routed via the **GRPS** switch to each of the Group Outputs.

## Slate Oscillator

**5** The **TONE** switch, when it is depressed, will route the oscillator signal to the Direct Output of every input module.

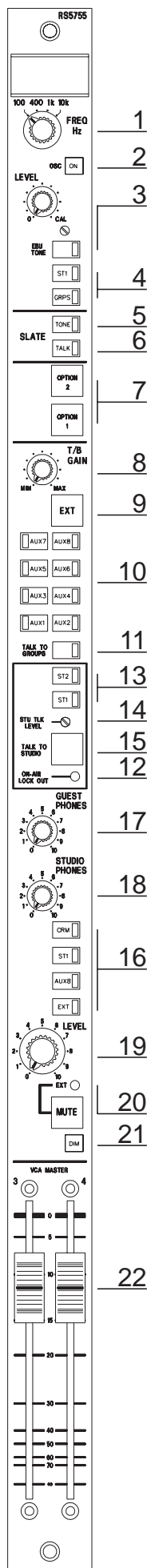
**6** The **TALK** switch, when it is depressed, will route the talkback signal to the Direct Output of every input module.

Note: Pressing both the TONE and TALK switches together will route the talkback signal and a 30Hz tone to the Direct Output of every input module.

## External Control Switches

**7** Two switches, **OPTION 1** and **OPTION 2**, are provided to give you the option of remote control of external devices/ lamps etc. A pair of normally-open contacts from each switch are made available via the External Logic d-type connector (see section 2 of this manual) . **Under no circumstances should mains voltages be placed on these contacts.**

In addition each switch has a pair of talkback contacts which are available on the Comms Module EDAC (see section 2). When the switch in question is released the talkback output carries, depending on link settings, either no signal or the signal from the EXT CUE contacts which are also available on the Comms Module EDAC. When the switch is depressed the appropriate output carries the Talkback signal from the console.



## Talkback

The input to the talkback system is from the Talkback Mic XLR which is provided as standard on the overbridge. A Talkback Line output which is available on EDAC 2 (see section 2).

**8** The overall gain of the talkback system is adjusted via the **T/B GAIN** pot. The relative level of the LINE input is set by an internal preset pot (VR8).

The talkback signal may be routed to the following:

**9** External Talkback output. This is done via the **EXT** switch

**10** The Aux 1 to 8 busses. This is done via the individual **AUX1** to **AUX8** switches.

**11** The 8 Group Outputs. This is controlled by the **TALK TO GROUPS** switch.

**12** The talkback signal may also be routed to the following (except when the **ON-AIR LOCK OUT** LED is on):

**13** The Stereo Master ST1 stereo output pair., via the **ST1** switch, and the Stereo Master ST2 stereo output pair., via the **ST2** switch.

**14** The **STU TLK LEVEL** preset pot allows you to set the level of the talkback signal that may be fed to the studio speakers and the studio phones.

**15** The **TALK TO STUDIO** switch routes the talkback signal to the studio speakers and the studio phones. Note that the studio speakers will be muted by the On-Air switch, but talkback is still sent to studio phones.

## Headphones/Studio Speakers

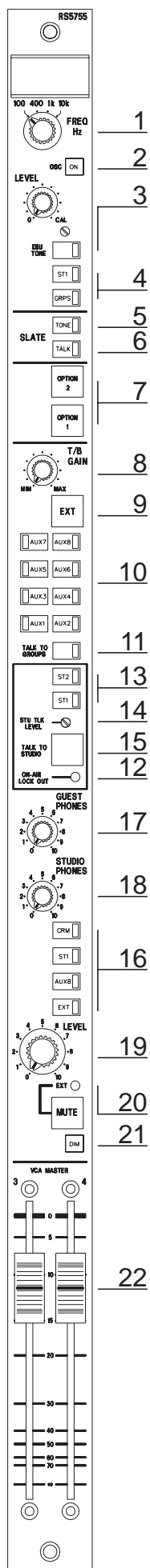
**16** The Guest Phones, Studio Phones and Studio Speakers input signal is selected by this bank of 4 switches. The choice is: **CRM** (whatever the control room monitor is sourcing via the Monitor module ), **ST1** Mix, **AUX 8**, or **EXT** ( input via cct 7 & 8 on the EDAC1, see section 2).

**17** The Guest Headphones output Level of this signal is controlled by the **GUEST PHONES** pot.

**18** The Studio Phones output level is controlled by the **STUDIO PHONES** pot.

If the TALK TO STUDIO switch is active the ST1 signals will be mixed and routed to the left headphone whilst the right headphone will carry the talkback signal. The Producer to Studio signal will be similarly routed whenever it is present (the Producer to Studio inputs and control are available on the EDAC1 and the EXT LOGIC D-type).

**19** The level of the Studio Speakers is adjustable via the **LEVEL** control. This is a VCA control, and therefore can be controlled externally (connections are via the EXT LOGIC D-type).

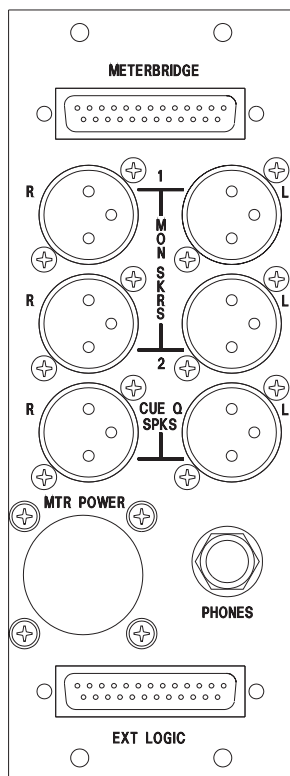


**20** The Studio Speakers May be muted via the **MUTE** switch. An associated **EXT LED** indicates when the Mute has been activated by the On-Air switch,

**21** The Studio Speakers are dimmed by depressing the **DIM** switch. The amount of dimming is controlled by an internal preset (VR15).

### Group VCA Master Faders

**22** The VCA **Group Master Faders** send the appropriate control voltages to the VCAs on the individual Input Modules. VCA Group Master Faders 3 and 4 are on this module.



## ***Rear Connector Panel***

This rear connector panel is a joint panel for the Monitor Module and the Comms Module.

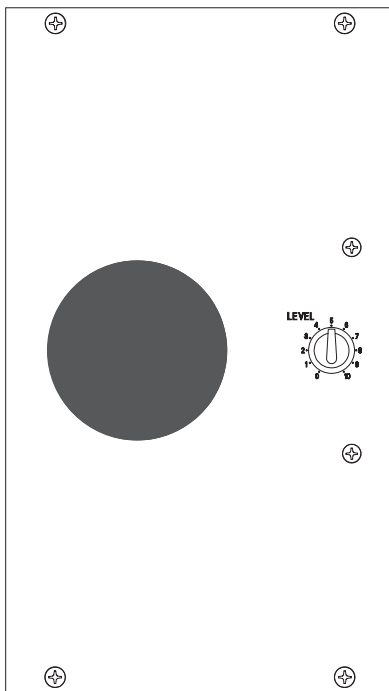
Each of the six XLRs for the Monitor Speakers (2 sets) and the Q Speakers follows the following output convention:

|      |        |
|------|--------|
| Pin1 | Ground |
| Pin2 | Hot    |
| Pin3 | Cold   |

## **Phones Jack Socket**

|        |       |
|--------|-------|
| Tip    | Left  |
| Ring   | Right |
| Sleeve | Gnd   |

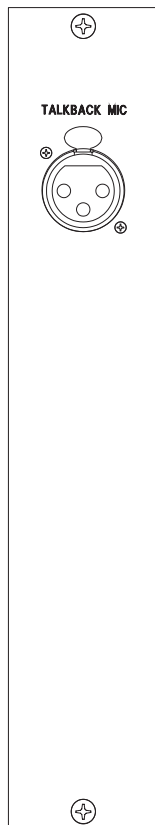
## Meterbridge Modules



### ***Meterbridge Speaker***

The meterbridge speaker feed is sourced from the Monitor Module (see block diagram in section 3 of this manual).

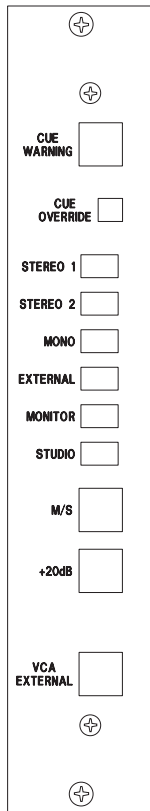
The meterbridge speaker has its own volume control.



### ***Talkback Mic***

The talkback mic socket is routed onto the Talk Bus via the Communications Module.

## Meter Selector Panel



This panel allows you to monitor a variety of console signals. The meters which would be used in conjunction with this panel may be chosen from a range of Soundcraft meter panels which are available from your dealer. It is suggested that a suitable choice would be a L/R pair + phase correlator.

### SELECTOR SWITCHES

There are six sources for monitoring: **STEREO 1** monitors the Stereo output of the ST1 Master module, **STEREO 2** monitors the Stereo output of the ST2 Master module, **MONO** monitors the Mono outputs from the ST1 and ST2 modules (ST1 on the left meter, and ST2 on the right meter), **EXTERNAL** monitors any signal placed on the external Input L and R XLRs on the meterbridge rear connector panel, **MONITOR** monitors the Monitor Module's output (to output speakers), and **STUDIO** monitors the Studio Speakers.

### CUE OVERRIDE

If the **CUE OVERRIDE** switch is depressed, any Overpress or Cue generated from the console will replace the selected meter source. The green **CUE WARNING** lamp will also light whenever a Cue or Overpress signal is present.

### M/S

The **M/S** switch encodes an incoming Stereo L/R signal pair into M/S for display on the meters. The **+20dB** switch works in conjunction with the M/S switch: it boosts the S signal by 20dB.

### VCA EXTERNAL

The red **VCA EXTERNAL** lamp illuminates whenever any module is under external VCA control.





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## **5.Specifications**

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# B800 Functional Specifications

## Connections

|                                      |                         |   |  |
|--------------------------------------|-------------------------|---|--|
| Mic Input (XLR)<br>with +/-6dB trim  | >1.5k $\Omega$ balanced | -72dBu to -6dBu in 6dB steps . . . . .  | +27dBu max                             |
| Line Input (XLR)<br>with +/-6dB trim | >10k $\Omega$ balanced  | -54dBu to +12dBu in 6dB steps . . . . . | +33dBu max                             |
| Insert Send (XLR)                    | <60 $\Omega$ balanced   | 0dBu (-4dBu Prefade) . . . . .          | +28dBu max (+25dBu into 600 $\Omega$ ) |
| Insert Return (XLR)                  | >10k $\Omega$ balanced  | 0dBu (-4dBu Prefade) . . . . .          | +28dBu max (+24dBu Prefade)            |
| Mono Direct Out (XLR)                | < 60 $\Omega$ balanced  | 0dBu . . . . .                          | +28dBu max (+25dBu into 600 $\Omega$ ) |
| Stereo Direct Out (Multipin)         |                         |   |  |
| Group Insert Send (XLR)              | < 60 $\Omega$ balanced  |   |  |
| Group Insert Return (XLR)            | >10k $\Omega$ balanced  |   |  |
| Group Output (XLR)                   | <60 $\Omega$ balanced   | 0dBu . . . . .                          | +28dBu max (+26dBu into 600 $\Omega$ ) |
| Aux Output (XLR)                     | < 60 $\Omega$ balanced  | 0dBu . . . . .                          | +28dBu max (+26dBu into 600 $\Omega$ ) |
| Monitor Output (XLR)                 | <60 $\Omega$ balanced   | 0dBu . . . . .                          | +28dBu max (+26dBu into 600 $\Omega$ ) |
| Main O/P Insert Send (XLR)           | < 60 $\Omega$ balanced  | 0dBu . . . . .                          | +28dBu max                             |
| Main O/P Insert Return (XLR)         | >10k $\Omega$ balanced  | 0dBu . . . . .                          | +28dBu max (+26dBu into 600 $\Omega$ ) |
| Main Output (XLR)                    | < 60 $\Omega$ balanced  | 0dBu . . . . .                          | +28dBu max (+26dBu into 600 $\Omega$ ) |

## Filters & EQ

Mono Input . . . . . Stereo Input

### Filters

|    |       |                    |          |
|----|-------|--------------------|----------|
| HP | Freq  | 80Hz . . . . .     | 80Hz     |
|    | Slope | 18dB/Oct . . . . . | 12dB/Oct |
| LP | Freq  | N/A . . . . .      | 12kHz    |
|    | Slope | N/A . . . . .      | 12dB/Oct |

### EQ

|     |      |                         |               |
|-----|------|-------------------------|---------------|
| HF  | Freq | 1kHz to 16kHz . . . . . | 1kHz to 16kHz |
|     | Gain | +/-15dB . . . . .       | +/-15dB       |
|     | Q    | Shelf . . . . .         | Shelf         |
| HMF | Freq | 500Hz to 8kHz . . . . . | 500Hz to 8kHz |
|     | Gain | +/-15dB . . . . .       | +/-15dB       |
|     | Q    | 1.2/2.5 . . . . .       | 1.2           |
| LMF | Freq | 125Hz to 2kHz . . . . . | 125Hz to 2kHz |
|     | Gain | +/-15dB . . . . .       | +/-15dB       |
|     | Q    | 1.2/2.5 . . . . .       | 1.2           |
| LF  | Freq | 32Hz to 500Hz . . . . . | 33Hz to 500Hz |
|     | Gain | +/-15dB . . . . .       | +/-15dB       |
|     | Q    | Shelf . . . . .         | Shelf         |

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## Auxiliaries

|     |        |                                     |                                  |
|-----|--------|-------------------------------------|----------------------------------|
| 1/2 | Mono   | Dual concentric Level . . . . .     | Pre/Post fade switched in pairs  |
| 3/4 | Mono   | Dual concentric Level . . . . .     | Pre/Post fade switched in pairs  |
| 5/6 | Mono   | Dual concentric Level . . . . .     | Pre/Post fade switched in pairs  |
| 7   | Stereo | Dual concentric Level/Pan . . . . . | Pre/Post fade switched in stereo |
| 8   | Stereo | Dual concentric Level/Pan . . . . . | Pre/Post fade switched in stereo |

## Oscillator

Switchable 100Hz, 400Hz, 1kHz, 10kHz plus 30Hz Slate override

## Frequency Response

Any input into any output      Measured at +50dB gain . . . . . +0.0 / -0.5dB, 20Hz - 20kHz

## THD and Noise

|                                      |   |                         |
|--------------------------------------|---|-------------------------|
| Mic input to Group<br>or Main output | Measured at +20dBu output . . . . .           | < 0.1% 20Hz - 16kHz     |
|                                      | Measured at 0dBu output . . . . .             | <0.02% @ 1kHz           |
|                                      |   | <0.05% 20Hz - 16kHz     |
| Mic input EIN                        | (22Hz - 22kHz bandwidth, unweighted . . . . . | < -128dBu (150Ω source) |
| Mix bus output noise                 | (32ch routed) . . . . .                       | < -80dBu                |
| Mix Bus noise                        | (no channels routed) . . . . .                | < -88dBu                |

## CMRR

|            |              |
|------------|--------------|
| Mic Input  | 80dB @ 1kHz  |
|            | 60dB @ 10kHz |
| Line Input | 70dB @ 1kHz  |
|            | 50dB @ 10kHz |

## Crosstalk

|                         |              |
|-------------------------|--------------|
| Channel muting          | 95dB @ 1kHz  |
|                         | 90dB @ 10kHz |
| Channel fader attention | 90dB @ 1kHz  |
|                         | 85dB @ 10kHz |

Note: These figures are typical of performance in a normal electromagnetic environment. Performance may be degraded in severe conditions. All measurements refer to electronically balanced inputs and outputs with VCAs enabled. Input and output transformers may affect these specifications.

