

D Series

User Manual

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D Series User Manual
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In line with the company's policy of continual improvement, specifications and function maybe subject to change without notice. This Operator Manual was correct at the time of writing. E&OE.

Section 4.....Optional Signal Routing

- 4.1.....General Information
- 4.2.....Standard Input Module
- 4.3.....Monitor Input Module
- 4.4.....Compact Output Module
- 4.5.....Matrix Output Module
- 4.6.....Input Connector Panel
- 4.7.....Recording Output Connector Panel
- 4.8.....Mains Earthing
- 4.9.....Cue Light Wiring

4.1 General Information

This section describes the settings of internal links on the various modules to allow the user to decide the take-off points for signal feeds within the console.

It also describes the wiring of the Cue light system.

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4.2 Standard Input Module

4.21 Foldback Pre – fade Signal

The Foldback prefade signal is normally connected post the equaliser, but can alternatively be linked to be pre – equaliser.

Link 1 determines this signal take – off point, and is marked accordingly on the PCB.

4.22 Auxiliary 1 and 2

As above, the signal feed for Auxiliaries 1 and 2 are normally set post – equaliser but can alternatively be linked to be pre – equaliser.

Link 2 determines the take – off point.

4.23 Auxiliary 3 and 4

As above, the signal feed for Auxiliaries 3 and 4 are normally set post – equaliser but can alternatively be linked to be pre – equaliser.

Link 3 determines the take – off point.

4.24 Solo

The SOLO signal is normally linked as a PFL (pre – fader) signal, but Link 4 can be used to provide a post – fader signal feed.

4.3 Monitor Input Module

4.31 Foldback Pre – fade Signal

The Foldback prefade signal is normally connected post the equaliser, but can alternatively be linked to be pre – equaliser.

Link 1 determines this signal take – off point, and is marked accordingly on the PCB.

4.32 Auxiliary 1 and 2

As above, the signal feed for Auxiliaries 1 and 2 are normally set post – equaliser but can alternatively be linked to be pre – equaliser.

Link 2 determines the take – off point.

4.33 Auxiliary 3 and 4

As above, the signal feed for Auxiliaries 3 and 4 are normally set post – equaliser but can alternatively be linked to be pre – equaliser.

Link 3 determines the take – off point.

4.34 Solo

The SOLO signal is normally linked as a PFL (pre – fader) signal, but Link 4 can be used to provide a post – fader signal feed.

4.4 Compact Output Module

4.41 SOLO

The Sub-Group solo is normally linked PFL (pre-fader) but can be linked to be post-fader.

Use Link 1 to set this.

4.5 Matrix Output Module

The Sub-Group fader is normally linked PFL (pre-fader) but can be linked to be post-fader.

Use Link 1 to set this.

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4.6 Input Connector Panel

The ground lift switch normally only disconnects the mixer earth (audio common) from pin 1 of the line input connector. By adding link B and removing link A it can alternatively be made to disconnect the mixer ground from pin 1 of both microphone input connectors. This is sometimes useful in a monitor mixer where the microphones are connected via a parallel type splitter box to the main front of house mixer and thus creating earth loops. Note however that the phantom power will not work with this modification.

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4.7 Recording Output Connector Panel

The ground lift switch normally disconnects the mixer ground (audio common) from pin 1 of all XLR connectors. By adding link A and removing link B, it can alternatively be made to disconnect the mixer ground only from pin 1 of the output XLR, leaving both tape return inputs with ground connections.

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4.8 Mains Earthing

The mains safety earth is permanently connected to the power supply metalwork and via the power supply cable, to all modules in the mixer. The mixer ground (audio common) is not directly connected to mains earth, but only through a parallel 100R resistor and a 100n capacitor, located on the power supply printed circuit board. This can be replaced by a link if required although it is then vital that the grounding integrity and freedom from external earth loops is maintained to prevent to performance degradation.

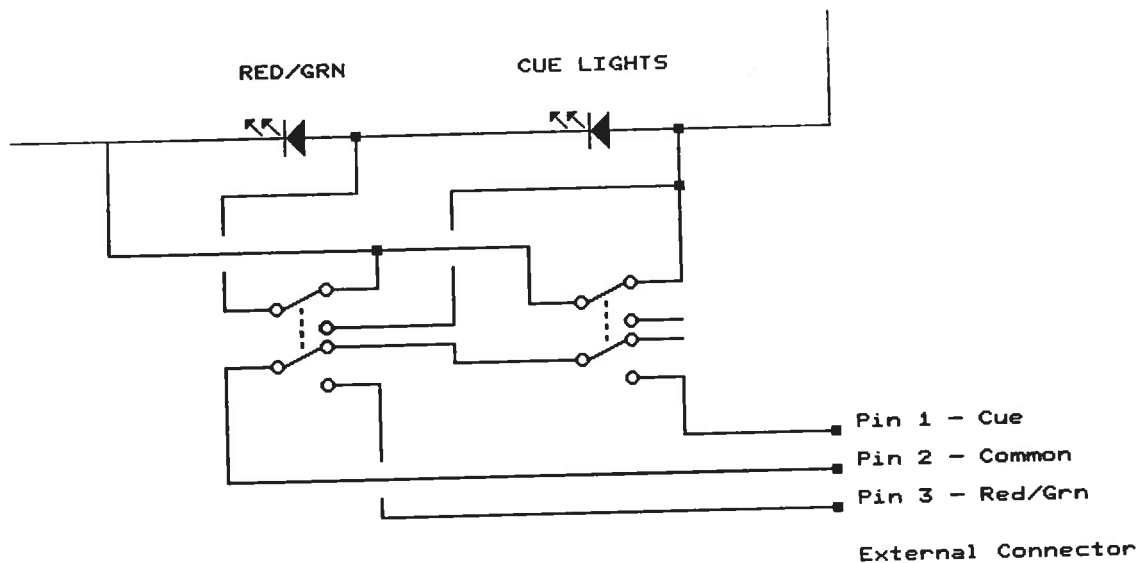
4.9 Cue Light Wiring

The two cue light switches on the Master Modules are fed to the EXTERNAL connector on the Master Output Connector Panel.

A mating connector for this is available from DDA or their Distributor.

The Pin-outs are as follows:

| | |
|-----------|-------|
| RED/GREEN | Pin 3 |
| CUE | Pin 1 |
| COMMON | Pin 2 |



Section 5.....Servicing

5.1....Mechanical Servicing

5.2....Meter Bulb Replacement

5.3....Alignments and Adjustments

5.4....Power Supply



5.1 Mechanical Servicing

The frame and construction of the D Series console allows easy and quick maintenance of all parts. Should it be necessary to replace any mechanical components not covered in this manual, please contact DDA.

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5.11 Module Removal

The extrusion system forming the heart of the D Series console allows very quick and easy removal and replacement of the channel modules.

To extract a module from the frame, it is necessary to remove the module clamping bar at the lower end of the modules.

First, remove the lower ident strip, which is held in by a "velcro" style fastener. It should simply pull out.

There are a number of large cross-headed screws in the bottom of the clamping bar, which when removed allow the clamping bar to be lifted off the frame.

To remove a module, lift the lower end by about 150mm, and pull the top end gently from underneath the clamping extrusion at the top of the frame.

Now carefully remove the bus connector (40 way ribbon) by releasing the strain release clips at each end of the connector and pulling the connector away from the module PCB.

Finally, carefully disconnect the molex plugs which connect the module to its rear panel.

Replacement is a straightforward reversal of the above process.

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5.12 Rear Connector panel removal

Should it be necessary to remove, replace or even to add a rear connector panel, it is a simple matter of removing the crosshead screws located one at the top and one at the bottom of the panel. The connector assembly can now be withdrawn from the frame. Care should be taken to ensure that the leads connecting it to the module are unplugged before trying to remove the panel completely.

5.13 Meter Panels

The panels holding the meters can be removed by first removing the meter bridge cover panels, a simple task, and accessing the screws holding in the meter panels themselves. It is not necessary to remove these panels just to change a meter illumination bulb.

The screws securing the meter panels are located top and bottom of the panel. Remember that the meters are wired to the modules.

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5.2 Meter Bulb Replacement

To replace a meter bulb, it is easier if the meter panel itself is removed first.

Remove the panel by undoing the screws located on the inside of the panel at the top and bottom.

Now to access the bulb, gently unclip the bezel from the meter, with a small screwdriver. It is advisable to replace both bulbs in the meter as the second may be damaged while working on its own.

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5.3 Alignments and adjustments

During normal operation of the console no adjustments should be necessary. Replacement of components may however necessitate some re-alignment to take account of component tolerances & characteristics.

5.31 Input Common Mode Adjust

The trim pot located on the input PCB can be adjusted for best common mode rejection.

To adjust, set up the inputs and outputs as follows: -

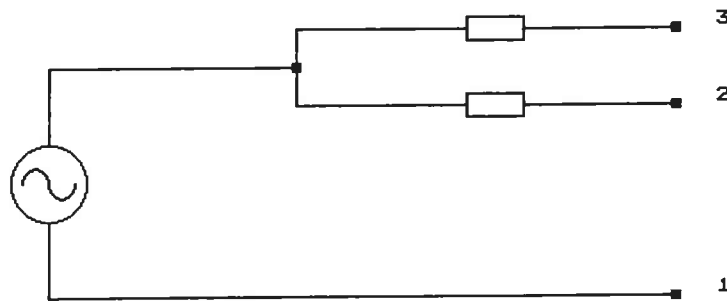
To both the hot and cold pins of the Mic input (pins 2 & 3) apply a signal of 1kHz, at -16dB. Set the mic gain control fully down (anticlockwise), and the pad switched out.

Set the input fader at 0, and route the signal to MIX.

Set the Master fader to give an output of +4dB.

Wire two 6.8 kohm resistors across the hot and cold signals of the mix output as shown below, and measure the signal across their join to earth.

Adjust the trim pot for minimum signal, which should be less than -55dB.



5.32 Meter Adjust

On the output module, there is a trim pot which adjusts the sensitivity of the VU meter. This pot is shown on the relevant PCB layout in Section 6.

Adjustment is straightforward.

From the internal oscillator route a 1kHz sine wave signal to the outputs and adjust the fader to give an output of +4dB. The meter can now be adjusted to read 0 VU.

This can also be used to set the meter at 0 VU for other operating levels if desired.

If the console has been fitted with PPM's, follow the procedure given in Section 8, which deals with special options and modifications.

Note: Before adjusting the meters, the output balancing should first be checked if any component has been replaced on the module. This is not necessary for a change of meter.

5.33 Group Output balance

Also on the output module is the adjustment potentiometer for the group output balance. Consult the appropriate PCB layout for the relevant part. To adjust, follow the procedure detailed below.

Connect two 1kohm resistors across the hot and cold signals of the group output. From the centre tap of these connect a voltmeter to ground (see drawing CD1008).

Set the output balance trim pot for minimum output at 1kHz.

5.34 Group Output Gain

The gain of the group output stage (fixed at the factory) can be adjusted by changing the value of resistor R2 (see drawing CD1008).

To increase the gain, lower the value of R2.



5.4 Power supply unit

The D Series power supply is a fully regulated linear type circuit, using monolithic devices.

Should repair be necessary, the only adjustment required may be the setting of the + and -18V rails, accomplished using the trim pots located on the PCB.

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Section 6.....Schematics

This section contains full circuit diagrams and PCB component layouts, in addition to module block diagrams. All drawings are copyright DDA 1989. They may not be copied or reproduced in any form without the consent in writing of DDA.

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Section 7.....Spare Parts List

7.1.....Mechanical Parts

7.2.....Electronic Parts

7.3.....Module Assemblies

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7.1 Mechanical parts

7.11 Pots/Faders

| | |
|---------------------------|--------------|
| 4K7 Dual pot | POT01 - 0001 |
| 10K Inverse log pot | POT01 - 0002 |
| 10K Log pot | POT01 - 0003 |
| 10K Log dual pot | POT01 - 0004 |
| 47K Linear pot | POT01 - 0005 |
| 100K Inverse log dual pot | POT01 - 0006 |
| P&G Fader, mono | POT03 - 0002 |

7.12 Switches

| | |
|------------|--------------|
| SUN 2 pole | SWT01 - 0001 |
| 4 pole | SWT01 - 0002 |
| 6 pole | SWT01 - 0003 |
| SUJ 2 pole | SWT01 - 0004 |
| 4 pole | SWT01 - 0005 |

7.13 Meters

| | |
|---------------|--------------|
| VU Meter | MTR01 - 0002 |
| BBC PPM Meter | MTR02 - 0004 |

7.14 Connectors

| | |
|--|--------------|
| XLR Male, 3 pin chassis | CON02 - 0003 |
| XLR Female, 3 pin chassis | CON02 - 0004 |
| Jack socket, mono | CON02 - 0001 |
| Jack socket, stereo | CON02 - 0002 |
| PSU Connector, chassis male | CON05 - 0001 |
| PSU Connector, chassis female | CON05 - 0002 |
| PSU Connector, free male | CON05 - 0003 |
| PSU Connector, free female | CON05 - 0004 |
| IEC Mains connector, chassis (incorporates fuse holder) | CON04 - 0002 |
| Ribbon connector, bus, 40 WAY | CON03 - 0004 |
| Ribbon connector, bus, 34 WAY | CON03 - 0018 |
| Audio connector, 8 way AMP F. | CON01 - 0002 |

7.15 Knobs

| | |
|------------------------|--------------|
| P&G Fader knob, WHITE | FRN04 - 0008 |
| P&G Fader knob, RED | FRN04 - 0007 |
| P&G Fader knob, YELLOW | FRN04 - 0006 |
| SUN switch cap, GREY | FRN03 - 0003 |
| SUN switch cap, BLACK | FRN03 - 0002 |
| SUN switch cap, RED | FRN03 - 0001 |
| SUJ switch cap, GREY | FRN03 - 0005 |
| SUJ switch cap, BLUE | FRN03 - 0006 |

Control knob, DARK GREY BODY
Control knob, GREY BODY
Control knob cap, DARK GREY
Control knob cap, GREY
Control knob cap, RED
Control knob cap, BLUE
Control knob cap, GREEN

FRN05 - 0001
FRN05 - 0002
FRN05 - 0003
FRN05 - 0004
FRN05 - 0005
FRN05 - 0006
FRN05 - 0007

7.16 Fixings

Module fixing screw
Module fixing washer

HWR01 - 0015
HWR02 - 0004

7.17 Fuses

6.3 A
3.15 A
250 mA

CSM02 - 0007
CSM02 - 0002
CSM02 - 0002

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7.2 ELECTRONIC PARTS LIST

7.21 Integrated Circuits

| | |
|-------|--------------|
| TL071 | SEM06 - 0001 |
| TL072 | SEM06 - 0002 |
| TL074 | SEM06 - 0003 |
| 5534 | SEM06 - 0004 |
| 5532 | SEM06 - 0009 |

7.22 Transistors

| | |
|-----------|--------------|
| BC182 | SEM04 - 0004 |
| BC212 | SEM04 - 0005 |
| BC184 | SEM04 - 0003 |
| 2SB737 | SEM04 - 0006 |
| BC441 | SEM04 - 0007 |
| BC461 | SEM04 - 0008 |
| 2N3055 | SEM04 - 0001 |
| PN3055 | SEM04 - 0002 |
| KBL02 | SEM03 - 0002 |
| 261 - 491 | SEM03 - 0001 |

7.23 Diodes

| | |
|-------------|--------------|
| 1N4148 | SEM02 - 0001 |
| IN4002 | SEM02 - 0002 |
| ZENER, 12V | SEM02 - 0003 |
| ZENER, 56V | SEM02 - 0004 |
| ZENER, 25V | SEM02 - 0005 |
| ZENER, 4.7V | SEM02 - 0006 |
| ZENER, 6.8V | SEM02 - 0007 |
| ZENER, 9.1V | SEM02 - 0008 |
| ZENER, 22V | SEM02 - 0009 |

7.24 Indicators

| | |
|---------------|--------------|
| VU Meter bulb | LMP01 - 0002 |
| LED, Red | SEM01 - 0002 |
| LED, Green | SEM01 - 0001 |

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Section 8.....Special Modifications

This Section is reserved for notes of any non-standard modifications which have been made to this console.

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Section 9.....Service Bulletins

DATA

C O N T E N T S

- Section 1....General Information
- Section 2....Installation
- Section 3....Module Descriptions
- Section 4....Optional Signal Routing
- Section 5....Servicing
- Section 6....Schematics
- Section 7....Spare Parts
- Section 8....Special Modifications
- Section 9....Service Bulletins



Section 1.....General Information

1.1 General Information

The D Series consoles are renowned for the integrity of the audio signal path, and the specifications surpass those of many other consoles.

Features such as 4 band EQ, up to 8 auxiliary/foldback buses, and 3 band EQ on auxiliary masters make the D Series an outstandingly versatile range of mixers.

Different module types can be selected according to the application, and their physical locations with the frame decided by the user.

The Power Supply is an external rack-mountable (3U) unit, with voltage selection for 100-120v and 220-240v.

Various options are available which are listed in the specifications, Section 1.3.

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1.2 Warranty

1.21. 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 (but no faulty design) to such an extent that the effectiveness and/or the usability thereof is materially affected, the Equipment or the faulty component shall be returned to the Distributor or DDA and subject to the following conditions the Distributor or DDA will repair or at its option replace the defective components. Any components replaced will become the property of DDA.

1.22. Any Equipment or component returned will be at the risk of the End User whilst in transit (both to and from the Distributor or DDA) and postage and/or freight charges must be prepaid.

1.23. This Warranty shall only be available if: -

- i) The Equipment has been properly installed in accordance with the instructions contained in this manual; and
- ii) The End User has notified the Distributor or DDA in writing within 14 days of the defect appearing; and
- iii) No persons other than authorised representatives of DDA or the Distributor have effected any replacement of parts, maintenance adjustments or repairs to the Equipment; and
- iv) The End User has used the Equipment for such purposes as DDA recommends with only such operating supplies as meet DDA's specifications or approval and otherwise in all respects in accordance with DDA's recommendations.

1.24. 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.

1.25. Benefit of this Warranty may not be assigned by the End User.

1.26. End Users 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.

1.27. DDA shall not be liable for any damage caused to persons or property due to :-

- i) Incorrect usage of the Equipment
- ii) Other equipment attached to the the Equipment, which is not approved by DDA
- iii) Modifications made by non - authorised persons, or by using non - recommended parts, or incorrectly made.

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1.3 Specifications

The following specifications are common to all D Series consoles, and are minimum specifications normally exceeded by all units.

DDA reserves the right to alter the design of the unit or change the specification without notice in the interest of product development.

Frequency Response

| | |
|------------------------|---------------------------------|
| Mic to Mix (gain=55dB) | 20Hz - 0.75dB 20kHz - 0.25dB |
| Line to Mix (gain=0dB) | 20Hz - 0.75dB 20kHz - 0.25dB |

Noise (DIN Audio)

| | |
|---|-----------|
| Microphone (gain=55dB, EIN ref 200 ohm) | < -127dBv |
| Line (gain=0dB, 16 inputs) | < -84dBv |

Distortion

| | |
|---|---------|
| Microphone (-50dBv input, +4dBv output) | < 0.05% |
| Line (+4dBv input, +4dBv output) | < 0.05% |

Crosstalk

| | |
|------------------|-------------|
| Adjacent channel | 1kHz - 90dB |
| Group to Mix | 1kHz - 80dB |

Input Impedance

| | |
|------------|----------|
| Microphone | > 2kohm |
| Line | > 10kohm |

Output Impedance

| | |
|-------------------------------------|----------|
| All outputs electronically balanced | < 75 ohm |
|-------------------------------------|----------|

Output capability

| | |
|---------------------------------|--------|
| All outputs (to balanced input) | +26dBv |
| Insert Send (unbalanced) | +21dBv |

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Gain

Microphone (Channel input to Mix output)
Line (Channel input to Mix output)

65dB
10dB

Power Requirements

100/110v 50 – 60 Hz
220 – 240v 50 – 60 Hz

Options

Input Transformers (microphone)
Output Transformers (Line)
Floor Stand
Spare PSU with auto switchover system
BBC PPM Meters

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Section 2.....Installation

2.1....Unpacking and Assembly

2.2....Wiring Considerations

2.3....PSU Connections

2.4....Audio Connections

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Section 2.....Installation

2.1 Unpacking and assembly

The console is supplied completely assembled, with the power supply packed separately.

The crate, once opened, should include two lifting straps, which can be used to assist in lifting the console from the wooden crate without dismantling the whole crate.

It may be that your console was supplied in a flight case, in which case the above does not of course apply.

The console is now ready for connection to the PSU (supplied separately) and to the audio system.

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2.2 Wiring Considerations

To take full advantage of the excellent audio performance of DDA mixing consoles, it is essential that the installation is carried out with care and attention. All audio signals are referenced to the system earth, which must be clean and noise-free, and essentially equipotential. In addition, the earth system integrity is absolutely necessary for safety. Do not disconnect the mains earth wire from each piece of equipment as this could create a hazardous situation. If in doubt consult a competent engineer and your local electricity supply company to ensure that safety regulations are not infringed or negated.

2.21 Decide on a central point for the main earth system and star feed to all mains outlets and equipment racks from this point. Common electrical wiring practice is to daisy-chain earth wires from outlet to outlet, but this is not recommended for audio installations. The location of the earth system star point should be in a convenient, easily accessible position, such as the main equipment rack. The star point must then be connected to the incoming mains earth or in extreme cases to a totally separate technical earth (if local regulations permit).

2.22 Install separate clean and dirty mains outlets, wired individually to the mains distribution box. Use the clean supply for all audio equipment, and the dirty supply for all lighting, vending machines etc. Do not mix the two systems.

2.23 It may be necessary to install an isolating transformer for the clean supply to ensure adequate isolation from mains-borne interference. The isolating transformer must be of adequate current capability and should incorporate a Faraday Shield, connected to the incoming mains earth.

2.24 All audio connecting cables should be good quality twin screened cable. Do not use single screened cable.

2.25 It is very important that the screen is not used as the signal return. Therefore connect the screen at one end only. Connecting the screen at both ends will cause an earth loop into which external hum fields will be induced.

2.26 In areas where high levels of radio frequency interference are present the open end of the screen can be connected to earth through a 0.01 microfarad capacitor. This will appear as a short circuit at high frequencies, and lower the effective shield impedance to earth. However at audio frequencies the reactance of the capacitor will be sufficiently high to not cause an earth loop.

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2.27 In general, the screen should be connected at the signal source, and not at the signal destination. The exception to this rule of thumb is when connecting to an unbalanced input or to an electronically balanced input. In these cases the wires being screened are referenced to the destination earth.

2.28 Electronically balanced outputs which are to be operated in the unbalanced mode should be unbalanced at the output connector, not at the signal destination so that the signal current returns to earth via the shortest, least reactive route.

2.29 Rack mounted equipment which has unbalanced inputs and outputs may need to be electrically isolated from the equipment rack and/or other equipment to avoid earth loops. **DO NOT DISCONNECT THE MAINS EARTH.**

Connect all equipment in a logical sequence, starting with the monitor systems, followed by the multitrack and then the stereo machines and the peripheral devices and isolate any earth loop problems as they occur. It is very difficult to rectify a problematical installation after everything has been connected due to interaction between the various earth loops.

2.3 PSU Connections

The rack mount PSU connects to the Arena console by one multiway cable, with screw-lock connectors. The cable is non-reversible so connection is straightforward, locking one end to the PSU rear panel, and the other to the mating connector on the rear top corner (left side when viewed from behind) of the console.

It is important to note that the locking rings on the console end of the connector (mounted on the console rear panel) needs to turn **CLOCKWISE** to be undone, when viewed from behind the console. This is the opposite direction to which most people would expect it to turn.

DO NOT USE MECHANICAL TOOLS SUCH AS ADJUSTABLE SPANNERS TO UNDO THE RING.

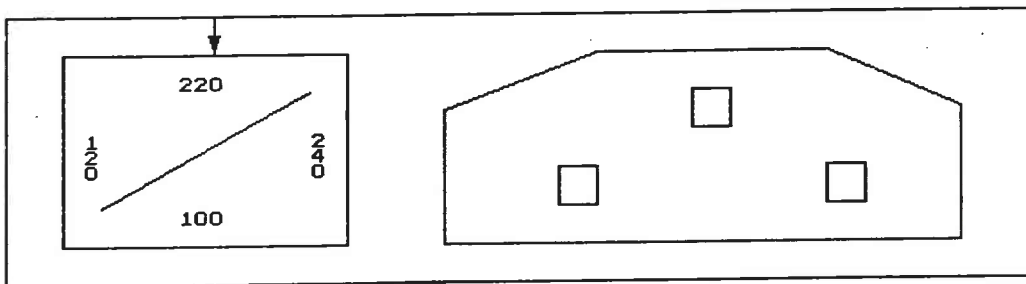
The PSU is connected to the mains by a standard 3 pin IEC lead, supplied with the PSU.

WARNING - ENSURE THAT THE CORRECT VOLTAGE HAS BEEN SELECTED ON THE PSU BEFORE SWITCHING ON THE UNIT.

2.31 Mains Voltage Selection

(Refer also to Section 6, Schematics)

The selection of the mains input voltage is made by removing the fuse holder from the rear panel of the PSU, and replacing it in the correct orientation for the local voltage supply. Ensure that the correct value fuse is fitted to correspond to the supply. See figure 2.31.



2.4 Audio Connections

Most Audio connections are made by standard XLR type 3 pin connectors, wired to the convention of pin 2 hot, ie

Pin 1 - Ground

Pin 2 - Signal +ve

Pin 3 - Signal -ve

The layout of these connectors will depend on the module concerned.

All inputs and outputs are electronically balanced. To unbalance an input or output, connect pin 3 to ground (or pin 2 if the device to be connected is wired to the other pin 3 hot convention).

Insert sends and returns are on unbalanced jack sockets, standard 1/4 inch. Normal tip hot, ring ground convention applies.

Where your console has been supplied with specially fitted connectors or multiways, the wiring of these will be found in Section 8, Special Modifications.

Section 3.....Module Descriptions

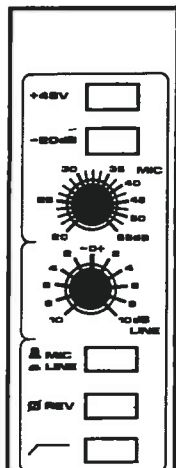
- 3.1....Theatre Input Module
- 3.2....Standard Input Module
- 3.3....Monitor Input Module
- 3.4....Stereo Input Module
- 3.5....Recording Output Module
- 3.6....Matrix Output Module
- 3.7....Compact Output Module
- 3.8....Stereo Master Module
- 3.9....Monitor Master Module
- 3.10...Aux/FB Master Module
- 3.11...Effects Return Module

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3.1 Theatre Input Module

The channel has independent electronically balanced microphone and line level inputs, providing very low noise, minimal phase shift and transient distortion and excellent common mode rejection performance. Interface is by separate XLR type connectors on the connector rear panel for microphone and line level inputs. To give ease of interconnection with external equipment a ground lift switch is provided on the line level input. Each input also has separate insert send and return points available on standard A type jack sockets. A direct post fader channel output is also available on jack sockets.

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+48v

Phantom power for capacitor microphones.

-20dB

Input attenuator to prevent microphone input overload from high output capacitor microphones.

MIC GAIN

The microphone gain control adjusts the gain from +20 to +55dB. Used with the -20dB input attenuator gives an effective control range of 55dB. This is centre detented at 0dB.

LINE GAIN

The line gain control adjusts the gain of the line level input from -10 to +10dB about the unity gain point. This control is centre detented at 0dB.

MIC/LINE

Input selector between microphone and line level inputs.

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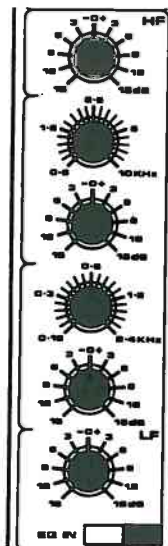
Reverses the phase on both the microphone and line level inputs.



Attenuates low frequency signals below 100Hz at a rate of 12dB/octave to eliminate air conditioning or stage rumble.

Equaliser

The 4 band equaliser provides high and low frequency shelving sections and 2 sweep frequency mid-range sections. The frequency selection controls are detented for easy resetting, and the boost/cut controls are centre detented for quick zeroing.



H.F

+/- 15dB at 10KHz with a shelving characteristic.

HI MID

+/- 15dB continuously variable between 600Hz and 10kHz.
Q (bandwidth) is 1.5.

LOW MID

+/- 15dB continuously variable between 150Hz and 2.4Hz.
Q (bandwidth) is 1.5.

L.F

+/- 15dB at 100Hz with a shelving characteristic.

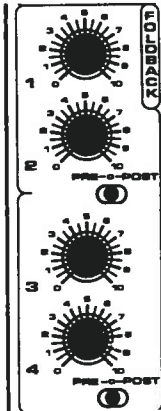
EQ IN

Switches the equaliser into the signal path, with LED indication.

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Foldback

The Foldback routing is made up of two identical sections operating as below. Either pair of sends can be internally linked to Pre-Fade 1 bus which is post the channel cut switch or to Pre-Fade 2 bus which is pre the channel cut switch. Consoles are supplied with all Sends linked to Pre-Fade 1 unless otherwise requested.



SEND 1

Adjusts the amount of channel signal sent to Foldback mix 1.

SEND 2

Adjusts the amount of channel signal sent to Foldback mix 2.

PRE/OFF/POST

Selects Sends 1 & 2 to be pre or post the channel fader or to be muted.

SEND 3

Adjusts the amount of channel signal sent to Foldback mix 3.

SEND 4

Adjusts the amount of channel signal sent to Foldback mix 4.

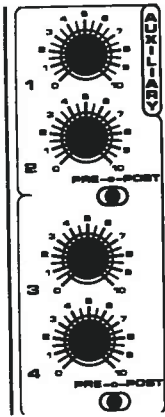
PRE/OFF/POST.

As for sends 1 and 2.

D
D
A

Auxiliaries

The Auxiliary routing is made up of two identical sections operating as below. As for the Foldback section the Auxiliary sends can be linked to Pre-Fade 1 or 2 buses.



SEND 1

Adjusts the amount of channel signal sent to Auxiliary mix 1.

SEND 2

Adjusts the amount of channel signal sent to Auxiliary mix 2.

PRE/OFF/POST

Selects sends 1 & 2 to be pre or post the channel fader or to be muted.

SEND 3

Adjusts the amount of channel signal sent to Auxiliary mix 3.

SEND 4

Adjusts the amount of channel signal sent to Auxiliary mix 4.

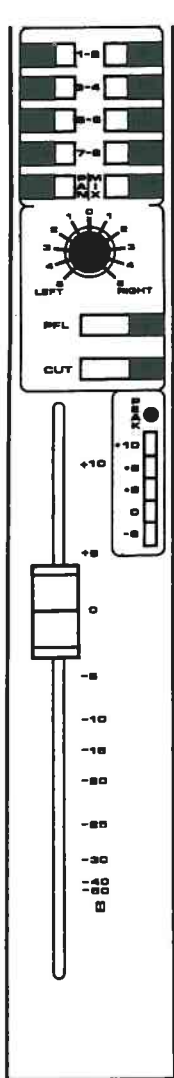
PRE/OFF/POST

As sends 1 and 2.

D
D
A

Routing

The channel can be routed to the individual Sub-Groups independently of the pan pot. If desired the pan pot can be switched into signal path in which case the odd numbered Sub-Groups are fed from pan left and the even numbered from pan right. The channel signal can also be routed to the main Stereo output busses. N.B. The Stereo outputs are always routed Via the pan pot. All routing switches are accompanied by LEDs as is the pan insertion switch giving easy indication of assignments.



1
Routes the channel signal to Sub-Group 1.

2 to 8
As for above but to Sub-Groups 2-8.

PAN

Selects the pan pot into the signal path to the Sub-Group routing. The channel signal will be panned between odd and even numbered groups.

MIX

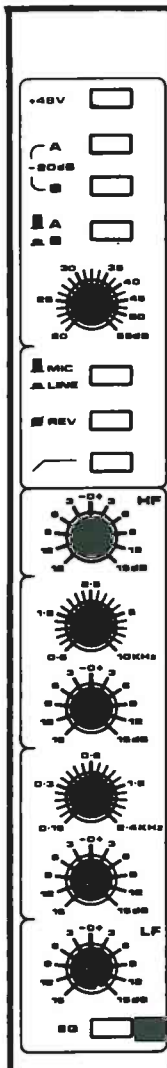
Routes the channel signal to the main Stereo mix outputs via the pan pot.

D
D
A

3.2 Standard Input Module

The Standard Input module has two Microphone inputs in addition to the Line Input. It also has the eight Auxiliary/Foldback buses, and routing to groups in pairs, with pan between odd and even buses.

D
D
A



+48V

Phantom power for capacitor microphones.

-20dB

Individual input attenuators for microphone A and B input.

A - B

Selects Microphone input A or B to the Mic Pre-amp.

MIC/LINE

Input selector for microphone or line level sources. Line input is accessed via a separate XLR connector, and is also electronically balanced.

φ REV

Reverses the phase of both microphone and line inputs.

12dB/Octave

high pass filter at 100Hz.

Equaliser

H.F.

+/- 15dB at 10kHz with a shelving characteristic.

HIGH MID

+/- 15dB continuously variable between 600Hz and 10KHz.
Q (bandwidth) is 1.5

LOW MID

+/- 15dB continuously variable between 150Hz and 2.4kHz.
Q (bandwidth) is 1.5

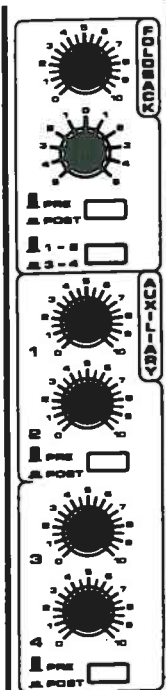
LF

+/- 15dB at 100Hz with a shelving characteristic.

EQ

Inserts equaliser into the signal path and is indicated by an LED.

Foldback



LEVEL

Adjusts the amount of channel signal sent to the foldback (Cue) system.

PAN

Pans the channel foldback signal between foldback 1 and 2 or 3 and 4.

PRE/POST

Selects the foldback take-off point to be either pre or post the channel fader. Pre signal can be internally selected to be pre or post the equaliser. (Normally post EQ, and pre channel insert)

1,2-3,4

Routes the channel foldback signal to either foldback mix 1 and 2, or 3 and 4.

Auxiliaries

LEVEL 1

Adjusts the amount of channel signal sent to Auxiliary Mix 1.

LEVEL 2

As above, but to Auxiliary Mix 2.

PRE/POST

Selects the take-off point for Auxiliaries 1 and 2 to be either pre or post the channel fader.

LEVEL 3

As above, but to Auxiliary Mix 3.

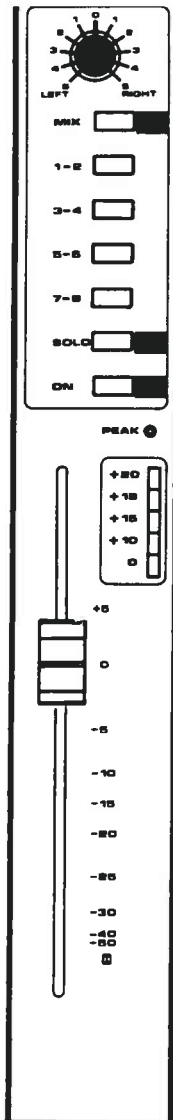
LEVEL 4

As above, but to Auxiliary Mix 4.

PRE/POST

As above, but for Auxiliary 3 and 4

Routing



PAN

Used with routing switches to pan between odd and even sub groups, and between left and right of the stereo.

MIX

Routes the channel signal to the main stereo mix outputs.

1 - 2

Routes the channel signal to the relevant sub groups.

3 - 4.

As above.

5 - 6.

As above.

7 - 8.

As above.

SOLO

Switches the channel signal to the monitor outputs and the main Stereo Mix meters for quality and level check. Signal take-off point can be internally selected for PFL (pre fader) or AFL (post fader) operation. (Normally linked for PFL at the channel insert return).

ON

Switches on all channel routing and post fader selected foldback and auxiliary sends, but does not affect the channel direct output to the connector panel.

Metering

PEAK

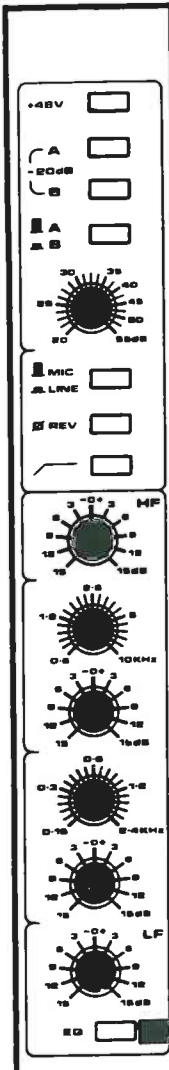
Warns of high level signal within 4dB of channel clipping, at the channel insert return.

LEVEL

5 LED array to meter the signal at the channel direct output.

3.3 Monitor Input Module

The Monitor input module provides access to 8 monitor buses, plus the stereo mix bus. This stereo bus can be used as a side-fill mix if so desired, increasing the number of simultaneous monitor mixes available to 10.



+48V

Phantom power for the majority of capacitor microphones.

-20 dB

Individual input attenuators for microphone A and B inputs.

MIC GAIN

Adjusts gain of either microphone input A or B, whichever is selected.

MIC/LINE

Input selector for microphone or line level sources. Line input is accessed via a separate XLR connector, and is also electronically balanced.

φ REV

Reverses the phase of both microphone and line inputs, whichever is selected.

12dB/Octave high pass filter.

Equaliser

H.F.

+/- 15dB at 10KHz with a shelving characteristic.

HIGH MID

+/- 15dB continuously variable between 600Hz and 10kHz.
Q (Bandwidth) is 1.5.

LOW MID

+/- 15dB continuously variable between 150Hz and 2.4kHz.
Q (bandwidth) is 1.5.

L.F.

+/- 15dB at 100Hz with a shelving characteristic.

EQ

Inserts the equaliser into the signal path and is indicated by an LED.

Foldback

LEVEL

Adjusts the amount of channel signal sent to the Foldback buses 1 and 2 (or 3 & 4).

PAN

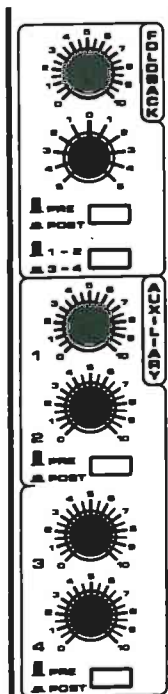
Pans the channel signal between Foldbacks 1 and 2 (or 3 and 4).

PRE/POST

Selects the Foldback bus take-off point to be either pre or post the master level control. The Pre signal can be internally selected to be pre or post the equaliser. (Normally post EQ, and pre channel insert.)

1,2-3,4.

Routes the channel signal to either Foldback bus 1 and 2, or to 3 and 4.



Auxiliaries

Level 1

Adjusts the amount of channel signal sent to Auxiliary Mix 1.

Level 2

As above, but to Auxiliary Mix 2.

PRE/POST.

Selects the take-off point for Auxiliary Mixes 1 and 2 to be either pre or post the master level control.

Level 3

As above, but to Auxiliary Mix 3.

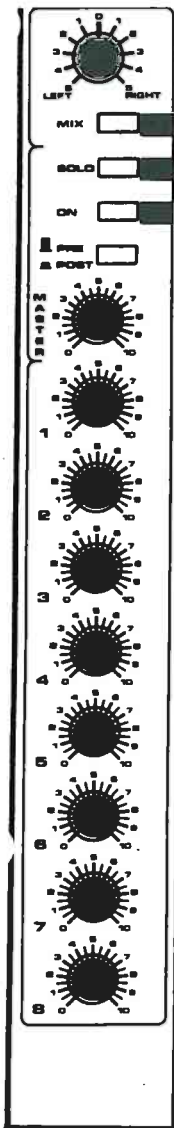
Level 4

As above, but to Auxiliary Mix 4.

PRE/POST

As above, but for Auxiliary Mixes 3 and 4.

Monitor Buses & Routing



PAN

Used with mix switch to pan the channel signal across the main stereo mix outputs.

MIX

Routes the channel signal to the main stereo Mix outputs.

SOLO.

Switches the channel signal to the monitor outputs and the main stereo mix meters for quality and level check. Signal take-off point can be internally selectable for PFL (pre fader) or AFL (post Fader) operation. (Normally linked for PFL at the channel insert send).

ON

Switches on the channel signal and all post fader selected monitor mix sends, but does not affect the channel direct output to the rear connector panel.

PRE/POST

Selects the eight Monitor Mix sends to be pre- or post- the Master level control.

MASTER

Controls the overall level of the channel signal fed to the Stereo Mix bus.

LEVEL 1

Controls the level of the channel signal sent to Monitor bus 1.

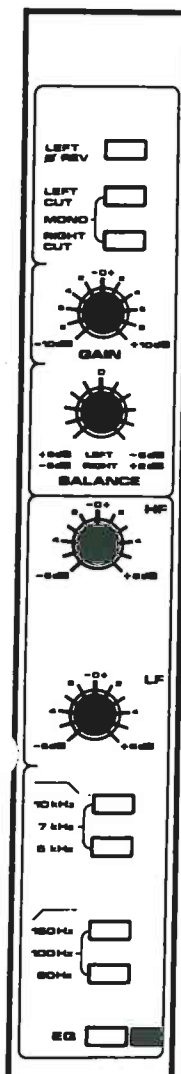
LEVEL 2 - 8

As above, for Monitor buses 2 to 8.

D
D
A

3.4 Stereo Input Module

The Stereo input module can be used in any variant of the D Series. It contains simple equalisation and routing facilities.



LEFT ϕ REV

Left channel phase reverse.

LEFT CUT

Left channel cut.

RIGHT CUT

Right channel cut.

If both L Cut and R Cut are selected, a mono sum of the stereo input signal is performed.

GAIN

10dB of gain with centre detent at the unity gain position.

BALANCE

Centre detented channel balance control.

Equaliser

H.F.

+/-6dB at 10kHz, with a shelving characteristic.

L.F.

+/-6dB at 100Hz, with a shelving characteristic.

12dB/Octave low pass filter at 10KHz, 7KHz, and 5kHz (switchable).

12dB/Octave high pass filter at 150Hz, 100Hz and 60Hz (switchable).

EQ

Inserts the equaliser into the signal path, and is indicated by an LED.

D
D
A

Foldback

LEVEL 1,2

Adjusts the amount of channel signal sent to the stereo foldback system.

PRE/POST

Selects the foldback take-off point to be either pre or post the channel fader.

1,2-3,4

Routes the channel foldback signal to foldback Mix 1 and 2 or 3 and 4

Auxiliaries

LEVEL 1,2

Adjusts the amount of channel signal sent to the stereo auxiliary.

PRE/POST

Selects the take-off point for Auxiliaries 1 and 2 to be either pre or post the channel fader.

LEVEL 3,4

As above.

PRE/POST

As above.

L-R

Assigns the channel to the main stereo Mix outputs.

1-2

Assigns the channel to the relevant sub Group bus.

3-4, 5-6, 7-8

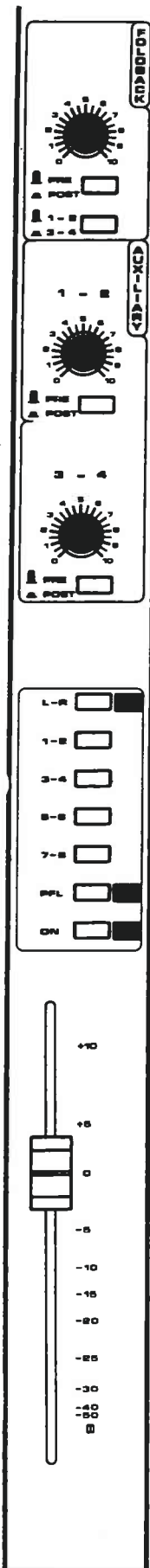
As above.

PFL

Switches the channel pre-fader signal to the monitor outputs and to the main stereo mix meters for quality and level check.

ON

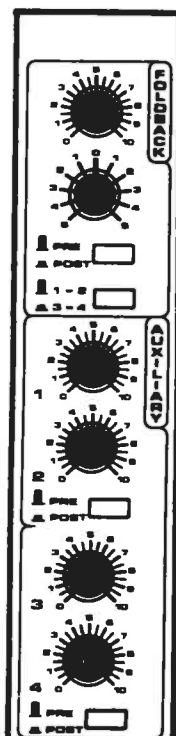
Switches on all channel routing and post-fader selected foldback and auxiliary signals.



3.5 Recording Output Module

The Recording Output module contains controls for the Sub-group output, plus two inputs for monitoring tape returns. The Multitrack Monitoring Module found on 24 Track Monitoring versions is essentially the same, but without the subgroup controls and meter switching.

Upper Monitor Section (TRACKS 9 - 16)



Foldback

LEVEL

Adjusts the level of the monitor signal sent to the Foldback system.

PAN

Pans the foldback signal between Foldback Mix 1 and 2, or 3 and 4.

PRE/POST

Selects the foldback take-off point to be either pre or post the monitor level control.

1,2 - 3,4

Routes the foldback signal to either foldback mix 1 and 2 or 3 and 4

Auxiliaries

LEVEL 1

Adjusts the amount of monitor signal sent to Auxiliary Mix 1.

LEVEL 2

As above, but to Auxiliary Mix 2

PRE/POST

Selects the take off point for Auxiliaries 1 and 2 to be either pre or post the monitor level control.

LEVEL 3

As above, but to Auxiliary Mix 3.

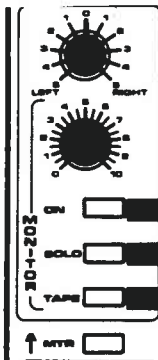
LEVEL 4

As above, but to Auxiliary Mix 4.

PRE/POST

As above, but for Auxiliaries 3 and 4.

Monitor



PAN

Allows the Monitor signal to be panned across the Stereo Mix (monitor) bus.

LEVEL

Adjusts the Monitor volume.

ON

Switches on the Monitor signal and all post Monitor level selected Foldback and Auxiliary sends.

SOLO

Switches the Monitor signal directly to the monitor outputs and the main Stereo Mix meters for quality and level check. Signal take-off point is PFL (pre-monitor level control).

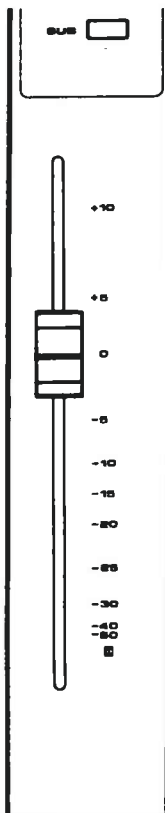
TAPE

Selects the monitor signal source to be either Group Output (signal to tape) or Tape Return (signal from tape).

METER

Switches the relevant meter input from the Lower monitor section the Upper monitor section. The meter input follows the relevant Tape switch for signal source.

Lower Monitor Section (TRACKS 1 - 8)



The lower monitor section is similar in operation to the upper monitor section described above, except for the deletion of the meter switch, and the addition of the sub switch.

SUB

Routes the Sub-Group signal directly to the stereo mix bus, Sub Groups 1,3,5, and 7, are routed to Left mix, and 2, 4, 6, and 8 are routed to Right mix.

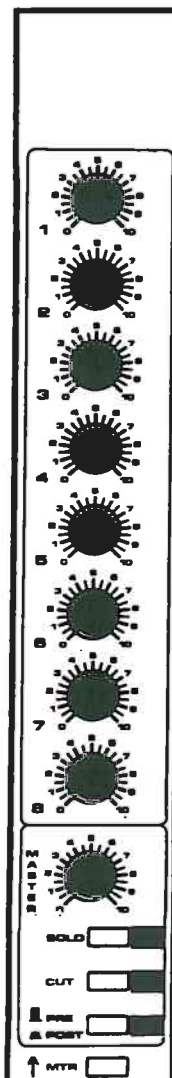
The sub group signal can alternatively be panned across the stereo mix by turning up the monitor level control, and not selecting Tape or sub.

N.B In either situation the monitor section must be switched on.

3.6 Matrix Output Module

The Matrix output module has all the controls for the audio sub-group outputs, plus an 8 by 8 matrix mixer, which can be used to derive parallel mixes. The matrix is fed from the audio sub-group signals.

Matrix Section



MATRIX SENDS 1-8

Sends 1-8 Adjusts the amount of Sub Group signal sent to each of the Matrix buses.

MATRIX MASTER

Overall master level control of the mix of all relevant Matrix sends.

SOLO

Switches the Matrix directly to the monitor outputs and for the main Stereo Mix meters for quality and level check. Signal take-off point is PFL. (Pre Matrix Master, at the insert send.)

CUT

Switches off the matrix output.

PRE/POST

Switches all matrix sends pre the sub-group fader, to allow independent, parallel Sub-group and Matrix operation.

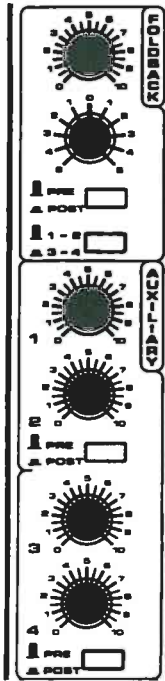
METER

Switches the relevant meter input from the Sub Group to the Matrix output.

D
D
A

Sub Group Section

Foldback



LEVEL

Adjusts the amount of Sub Group signal sent to the Foldback (cue) system.

PAN

Pans the foldback signal between Foldback Mix 1 and 2 or 3 and 4.

PRE - POST

Selects the foldback signal take - off point to be either pre or post the Sub Group fader.

1,2, - 3,4

Routes the foldback signal to either Foldback mix 1 and 2 or 3 and 4.

Auxiliaries

LEVEL 1

Adjusts the amount of sub - group signal sent to Auxiliary Mix 1.

LEVEL 2

Adjusts the amount of sub - group signal sent to Auxiliary Mix 2.

PRE/POST

Selects the take - off point for Auxiliaries 1 & 2 to be pre or post the sub - group fader.

LEVEL 3

Adjusts the amount of sub - groups signal sent to Auxiliary Mix 3.

LEVEL 4

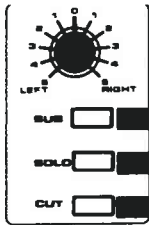
Adjusts the amount of sub - groups signal sent to Auxiliary Mix 4.

PRE/POST

Selects the take - off point for Auxiliaries 3 & 4 to be pre or post the sub - group fader.

D
D
A

Sub – Group Signal



PAN

Used with the SUB switch to pan the sub-group signal across the stereo mix buses.

SUB

Routes the sub-group to the stereo mix via the pan pot.

SOLO

Switches the sub-group signal directly to the monitor outputs and the main stereo meters. Signal take-off point can be internally selected for PFL (pre-fader) or AFL (post-fader) operation. Normally linked for PFL at the insert send.

CUT

Switches off the sub-group and all post-fader selected Foldback and Auxiliary sends.

REVERSE.

Transposes the function of the Sub Group fader and Matrix Master, allowing the slide fader to control the Matrix level.

D
D
A

3.7 Compact Output Module

Sub Group 1 (Upper Section)

Foldback

LEVEL

Adjusts the amount of sub group signal sent to the Foldback (cue) system.

PAN

Pans the Foldback signal between Foldback mix 1 and 2 or 3 and 4.

PRE/POST

Selects the Foldback take-off point to be either pre or post the sub group fader.

1,2 - 3,4

Routes the Foldback signal to either Foldback mix 1 and 2 or 3 and 4.

Auxiliaries

LEVEL 1

Adjusts the amount of sub group signal sent to Auxiliary mix 1.

LEVEL 2

As above, but to Auxiliary mix 2

PRE/POST

Selects the take-off point for Auxiliaries 1 and 2 to be either pre or post the sub Group fader.

LEVEL 3

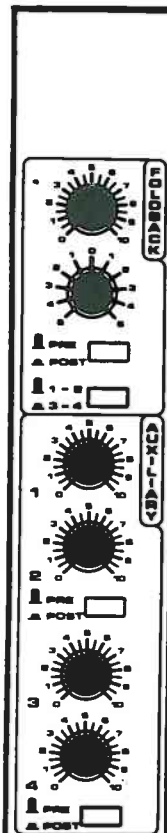
As above, but to Auxiliary mix 3.

LEVEL 4

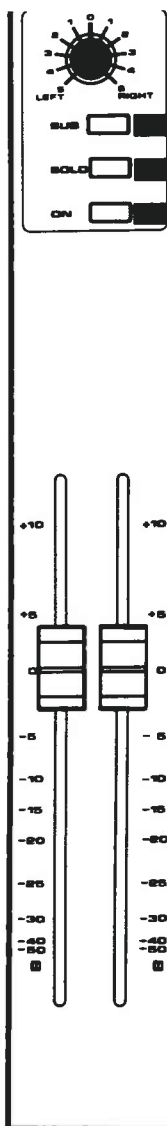
As above, but to Auxiliary mix 4.

PRE/POST

As above, but for Auxiliaries 3 and 4.



D
D
A



PAN

Used with the Sub switch to pan the Sub-Group across the stereo mix bus.

SUB

Routes the Sub-Group Signal to the Stereo mix via the pan pot.

SOLO

Switches the Sub-Group signal directly to the monitor outputs and the main Stereo mix meters for quality and level check. Signal take-off point can be internally selected for PFL (pre fader) or AFL (post fader) operation. (Normally linked for PFL at the Insert send.)

ON

Switches on the Sub-Group and all post fader selected Foldback and Auxiliary sends.

Sub Group 2 (Lower Section)

The Lower Sub-Group section is identical to the upper Sub-Group section described above.

**D
D
A**

3.8 Stereo Master Module

The two master modules, Stereo and Oscillator/Monitor, are common to all D Series models.

DDA

Talkback

T/B LEVEL

Adjusts the level of the talkback system.

Monitor

STUDIO LEVEL

Adjusts the volume of the Studio Monitor speakers.

STUDIO ON

Switches on the signal to the Studio Monitor System.

MONITOR

Adjusts the volume of the Control Room Monitor speakers. Signal source is selected on the Monitor Master module, but is over-ridden by any Solo operation.

MONO

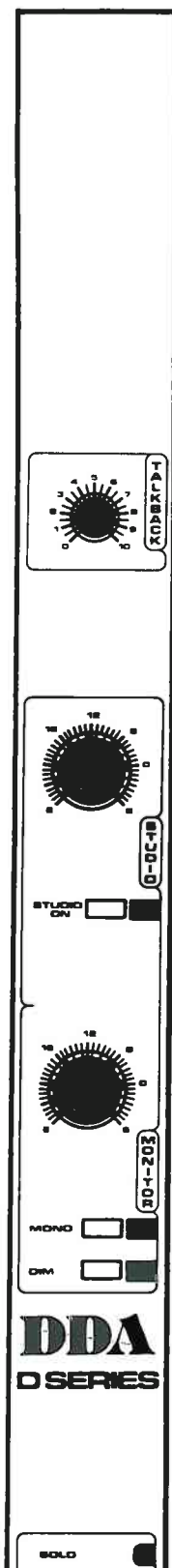
Switches the Monitor system to mono to allow a mono/stereo compatibility check.

DIM

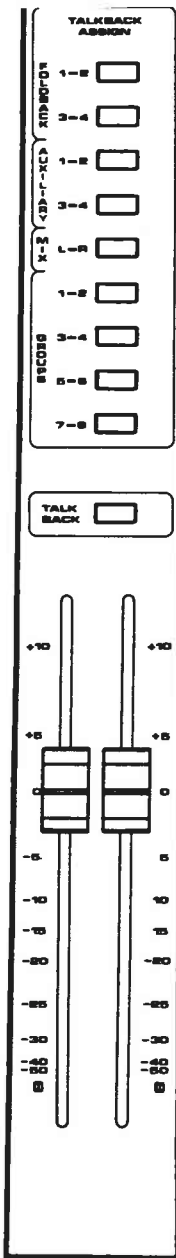
Attenuates the monitor system by 20dB.

SOLO

Warning LED illuminates when any solo function in the mixer is activated, in conjunction with a local LED indication.



Talkback assign



FOLDBACK

Preselects the talkback signal to the Foldback buses for communication purposes.

AUXILIARY

Preselects the talkback signal to the Auxiliary buses.

MIX

Preselects the talkback signal to the Stereo Mix buses to allow tape identification. (Slate)

GROUPS

Preselects the talkback signal to the Group buses to allow tape identification. (Slate)

TALKBACK

Switches the talkback signal to the preselected assignments, and to the rear panel XLR connector. When Talkback is operated the monitor outputs are attenuated to prevent feedback, and allow 2 way conversation.

D
D
A

DBA

[illegible]

LEVEL
Adjusts the volume to the headphone jack socket. The signal source is selected by the monitor source switches at the bottom of the module and is the same as the main Control Room and studio monitor outputs. The source selection is overridden by the operation of any solo function on the mixer.

LEVEL
Adjusts the oscillator signal level to the rear connector panel XLR and to the mix buses via the assignment switches.

FREQUENCY
2 switches are used together to provide frequency selection of 10Hz, 1KHz, 100Hz and 50Hz.

Switches the oscillator on.

OSC ASSIGN 9 switches allow the oscillator to be routed to all foldback, auxiliary, stereo and group mix buses.

CUE LIGHTS
Switches a normally open contact to the rear panel mounted
EXTERNAL connector. For wiring details, see section 4.

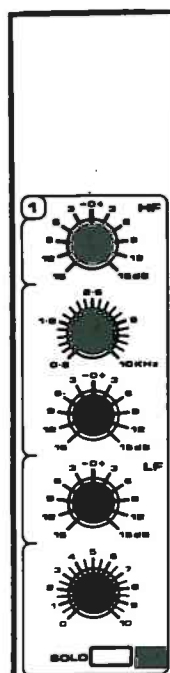
GREEN/RED
Change - over contacts to the rear panel mounted **EXTERNAL** connector.

TAPE 1
Preselects the tape return inputs of Tape 1 to the Mix/Tape switch.

TAPE 2
Preselects the tape return inputs of Tape 2 to the Mix/Tape switch.

MIX/TAPE
Switches the monitoring and metering and metering source between the main Stereo Mix output and the preselected Tape Return input to provide stereo tape playback.

3.10 Foldback or Auxiliary Master Module



Foldback / Aux 1

H.F

+/- 15dB at 10Hz with a shelving characteristic.

MID

+/- 15dB continuously variable between 600Hz and 10KHz.

L.F

+/- 15dB at 100Hz with a shelving characteristic.

LEVEL

Master level control for the relevant Foldback or Auxiliary output.

SOLO

Switches the relevant Foldback or Auxiliary mix directly to the Monitor outputs and main Stereo Mix meters for quality and level check. Signal take-off point is AFL. (Post master level control.)

Foldback / Aux 2

As above

Foldback / Aux 3

As above

Foldback / Aux 4

As above

D
D
A