

# **D-MIX**

## **388**

### **User Guide**





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

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# **Introduction**

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# Introduction

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**D-Mix 300 is specifically designed for the hobby and mobile DJ. The D-Mix 300 combines superb audio performance with rugged construction. Simple to use, it will provide years of service together with matchless sound.**

**D-Mix 300 has everything that the creative DJ demands, with input source select toggle switches, Level control on every channel to balance variable source recordings, Hi, Mid and Low equalisation on every channel, and a large light-up Cue switch. The EQ on channels 1 to 3 features a revolutionary skewed characteristic, with 5dB of boost and 15dB of cut.**

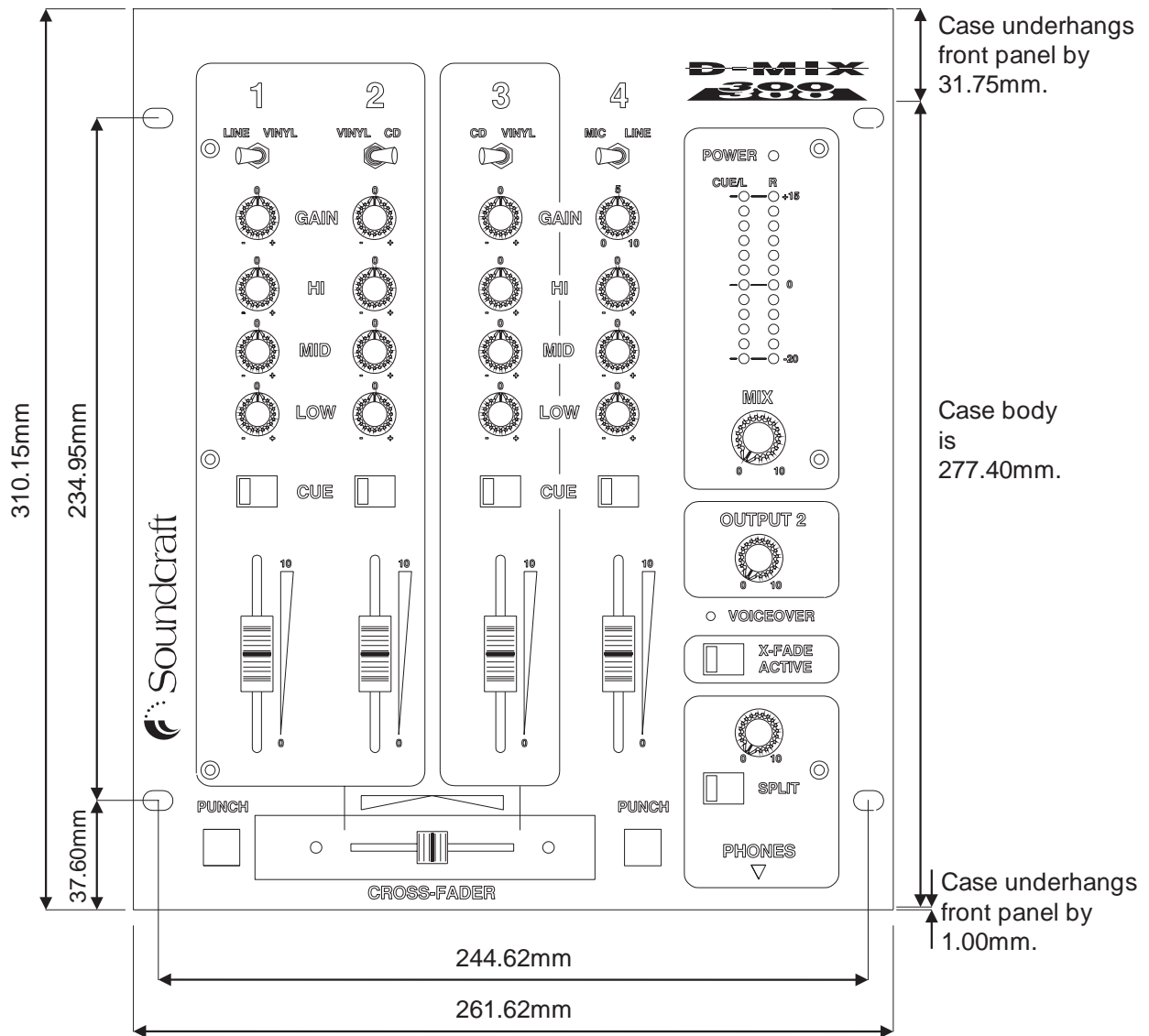
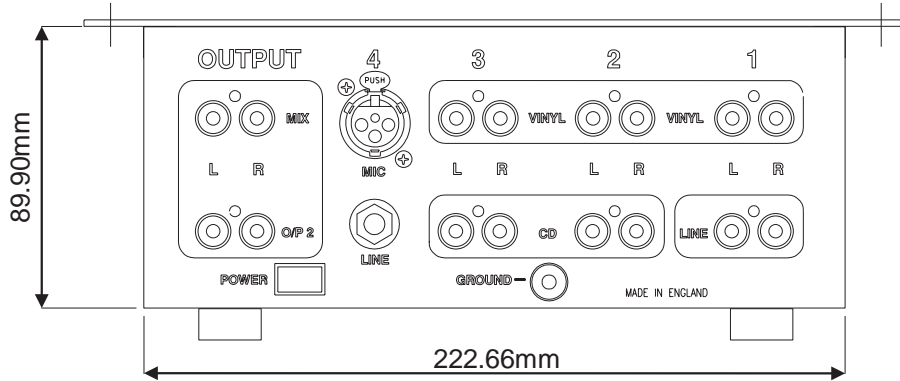
**The first three smooth 60mm faders feed into the cross fader (which can be disabled by a switch), and which has a truly “dipless” cross fade characteristic - there is no audible dip in the signal from one side to the other. In addition robust “punch” buttons on each side of the crossfader will cut electronically to the source playing on that side of the cross fader, with no audible click. Each punch button also features a built-in beat LED, to help with beat matching.**

**D-Mix 300 is easy to set up, having four input channels, with all their connectors on the rear panel in obvious alignment. The first three channels are vinyl/line stereo inputs, with RIAA equalisation built in, on industry-standard RCA phono sockets. There is a binding post for turntable grounds, The fourth channel is a mic/line mono input, which always by-passes the crossfader, and which has a variable threshold voice-over function.**

**D-Mix 300’s outputs include two separate sets of connectors, for the main mix and for a recording feed, with adjustable output level on both. The headphone socket is especially loud, and has a Split Cue facility, with the cue signal appearing in the left phone while the main mix stays on the right.**

# **Installation**

# Dimensions





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# Precautions and Safety Instructions

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## General Precautions

Avoid storing or using the mixing console in conditions of excessive heat or cold, or in positions where it is likely to be subject to vibration, dust or moisture. Use only water or ethyl alcohol to clean the fascia of the unit: other solvents may cause damage to paint or plastic parts.

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

**C a u t i o n !      In all cases, refer servicing to qualified personnel.**

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## Handling and Transport

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

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## Power Supply Unit (PSU)

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

**W a r n i n g !      Before plugging in your PSU for the first time, ensure that it is suitable for your local mains voltage.**

**W a r n i n g !      Always switch the power supply off before connecting or disconnecting the mixer power cable, or servicing. In the event of an electrical storm, or large mains voltage fluctuations, immediately switch off the PSU and unplug from the mains.**

---

## Signal Levels

It is important to supply the correct input levels to the console, otherwise signal to noise ratio or distortion performance may be degraded; and in extreme cases, damage to the internal circuitry may result.

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

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## Headphones

**W a r n i n g      Exercise extreme caution when using headphones. Turn the level control right down before listening. It is possible to damage your hearing if the level is set too high.**

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# Mains Installation

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## General Wiring Procedures

The Ground Post on the rear of the D-Mix 300 is internally connected to the Audio Ground and the chassis of the D-Mix 300. However, the PSU supplied with the D-Mix 300 is a Class 2 (double insulated) device. There is therefore no Mains Earth connection through the PSU to the Audio Ground. However, for safety, the D-Mix 300 must be connected to mains earth via the binding post. This will provide protection for the user in the event that an external piece of equipment should develop a fault which puts a dangerous voltage onto the signal ground.

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

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

Ensure that all equipment racks are connected to earth, via a separate wire back to the star point.

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# Audio Wiring

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

- Connect the power amplifiers & speaker to the console and check for any hum, buzz, or RFI( Radio Frequency Interference). Only when you are satisfied with the quietness of the system should you proceed with the next step.
- Connect stereo tape recorders, cds and turntables one at a time, checking and isolating any connection which degrades performance.
- Connect the microphone.

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

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## Making The Connecting Leads

Use good quality screened audio cable for your interconnection leads. The connections you will need to make will depend on the requirements of the external devices that you are proposing to connect to the D-Mix 300. On pages 2.7 and 2.8 there are examples of different types of leads which you may need to use. The different requirements will be discussed here.

### Microphones

See figures 1 and 2 on page 2.7.

The microphone input (channel 4, XLR connector) is a balanced input.

If you have a balanced microphone then the connections will be as shown in figure 1. The chances are that your microphone will already have an XLR connector on its lead, in which case just plug it in; but it may have a 3-pole jack plug, in which case you will need to take the jack off and replace it with a male XLR, the diagram shows the pin details.

If you want to connect an unbalanced microphone then see figure 2. Your microphone will probably be connected to a lead which has a screen and a single insulated conductor, you will need to connect it as shown, i.e. the signal goes to pin 2 of the XLR and the screen goes to pin 1, with a link between pin 1 and pin 3 of the XLR

### Turntables, CDs and Tape Machines

See figures 3 and 4 on page 2.7.

These inputs on the D-Mix 300 are all on phono sockets and are all unbalanced. The figures show one lead, but you will need to connect two leads per device: one for the left signal and one for the right.

Some of your external devices may have balanced outputs and some may have unbalanced outputs. You will need to consult the device instruction book to find out which they are.

For devices with balanced outputs see figure 3. You will need audio cable with 2 cores + screen, a suitable connector for the device end and a phono plug for the D-Mix 300 end. The signal + (sometimes called "hot") from the device is connected to signal at the D-Mix 300, the signal - (sometimes called "cold") is connected to Gnd at the D-Mix 300, and the screen is connected at one end only. Don't connect it at both ends otherwise you will have created what is called a "ground loop", which will cause buzzing to be heard from the speakers and headphones. The diagram shows the screen connected at the device end but if the device does not have its own mains earth connection (i.e. it is double insulated) then the screen must be connected at the D-Mix 300 end.

Don't forget to make a second, identical lead.

For devices with unbalanced outputs see figure 4. You will need audio cable with 1 core + screen, a suitable connector for the device end and a phono plug for the D-Mix 300 end. The signal from the device is connected to the signal at the D-Mix 300. The screen should normally only be connected at one end, but if the external device doesn't have its own mains earth then connect the screen at both ends.

Again, don't forget to make a second, identical lead.

## Balanced Line Input on Channel 4

See figures 5 and 6 on page 2.7.

This input is on a 1/4" jack socket and is balanced. This is a mono input so you will only need one lead.

If the device has a balanced output see figure 5. You will need audio cable with 2 cores + screen, a suitable connector for the device end and a jack plug for the D-Mix 300 end. The signal + (sometimes called "hot") from the device is connected to signal+ at the D-Mix 300, the signal - (sometimes called "cold") is connected to signal - at the D-Mix 300, and the screen is connected at one end only. The diagram shows the screen connected at the device end but if the device does not have its own mains earth connection (i.e. it is double insulated) then the screen must be connected at the D-Mix 300 end.

If the device has an unbalanced output see figure 6. You will need audio cable with 2 cores + screen, a suitable connector for the device end and a jack plug for the D-Mix 300 end. The signal from the device is connected to signal+ at the D-Mix 300, the gnd of the device is connected to signal - at the D-Mix 300, and the screen is connected at one end only. The diagram shows the screen connected at the device end but if the device does not have its own mains earth connection (i.e. it is double insulated) then the screen must be connected at the D-Mix 300 end.

## Output Devices - Amps, Tape Machines, Headphones

See figures 7 and 8 on page 2.8.

The main outputs and number 2 outputs on the D-Mix 300 are all on phono sockets and are all unbalanced. The figures show one lead, but you will need to connect two leads per device: one for the left signal and one for the right.

For devices with balanced inputs see figure 7. You will need audio cable with 2 cores + screen, a suitable connector for the device end and a phono plug for the D-Mix 300 end. The signal from the D-Mix 300 is connected to signal + at the device, the Gnd at the D-Mix 300 is connected to signal - at the device, and the screen is connected at the D-Mix 300 end.

Don't forget to make a second, identical lead.

For devices with unbalanced inputs see figure 8. You will need audio cable with 1 core + screen, a suitable connector for the device end and a phono plug for the D-Mix 300 end. The signal from the D-Mix 300 is connected to signal at the device. The screen should normally only be connected at one end, but if the external device doesn't have its own mains earth then connect the screen at both ends.

Again, don't forget to make a second, identical lead.

The headphone connections are shown in figure 9.

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## General Advice

Do not disconnect the mains earth from any piece of equipment. This is needed to provide both safety and screen returns to the system star point.

Rack-mounted equipment may need to be electrically isolated from the equipment rack and/or other equipment, to avoid earth loops.

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

Audio equipment is supplied with a variety of input and output configurations, which must be taken into consideration when deciding where the screen connections should be made. When the screen is connected at one end only, in general, always connect the shield at the signal source end.

# Input Connections

Figure 1

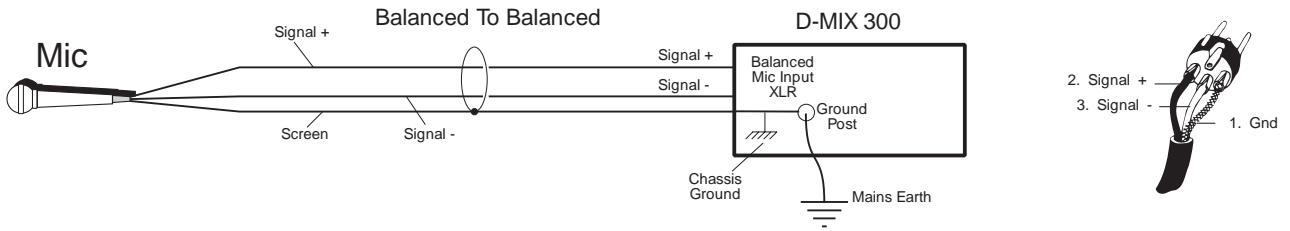


Figure 2

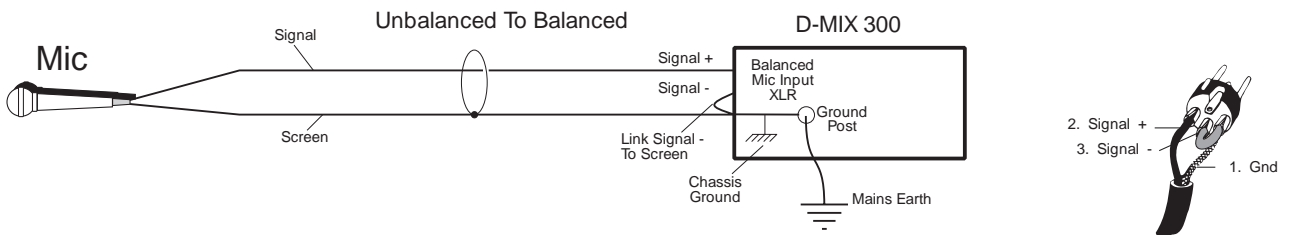


Figure 3

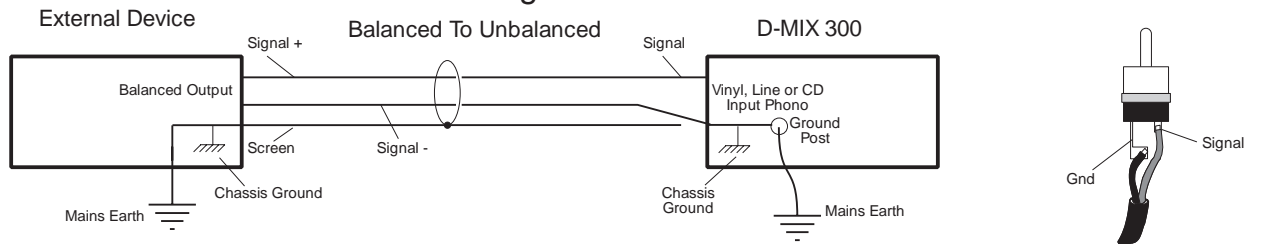


Figure 4

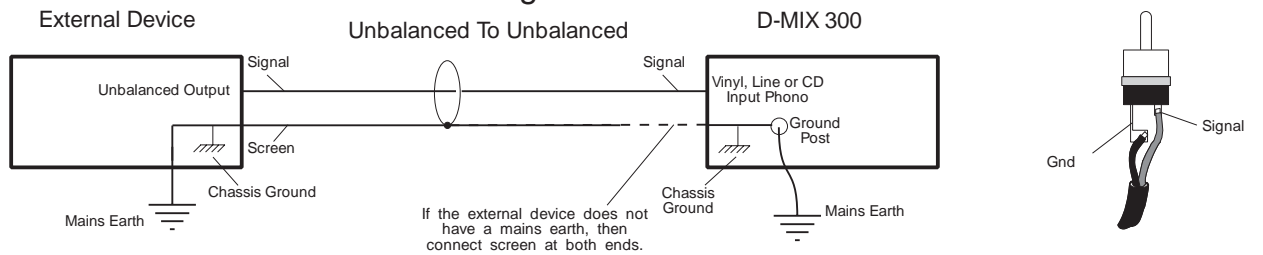


Figure 5

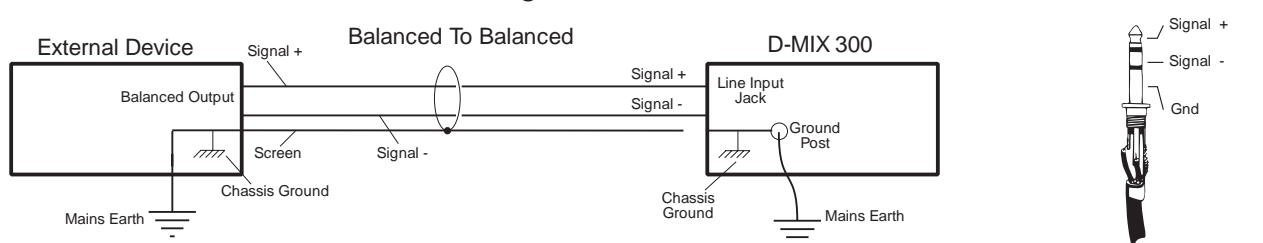
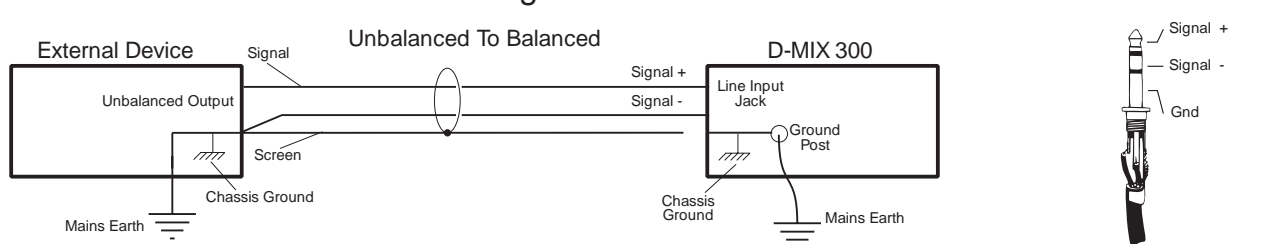


Figure 6



# Output Connections

Figure 7

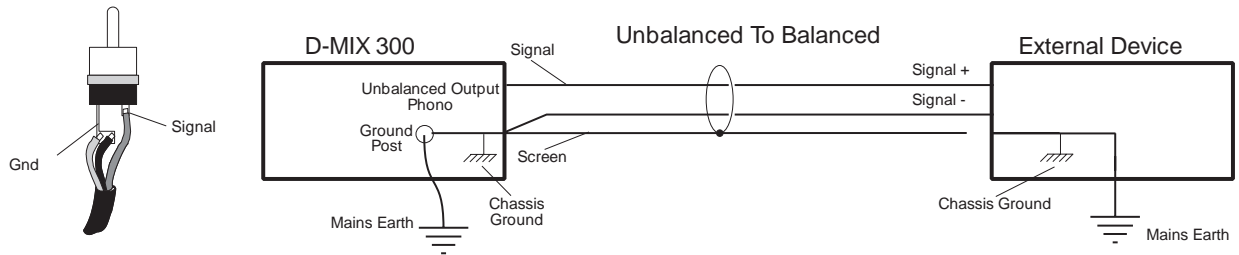


Figure 8

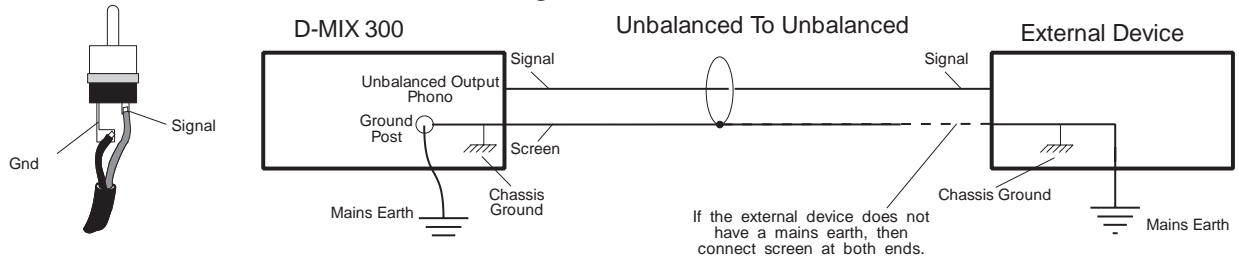
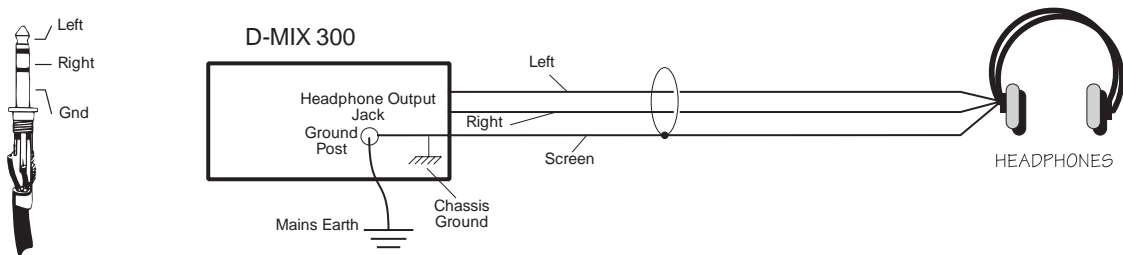


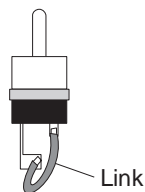
Figure 9



# Vinyl Input Termination

If you leave any of the vinyl inputs unused, and you intend to use the input source select switch on that channel to switch the other input on and off, you must make some input terminator plugs as shown below (2 per unused vinyl input). This is to prevent the unused vinyl input from picking up any stray electrical noise.

Vinyl Input Terminator

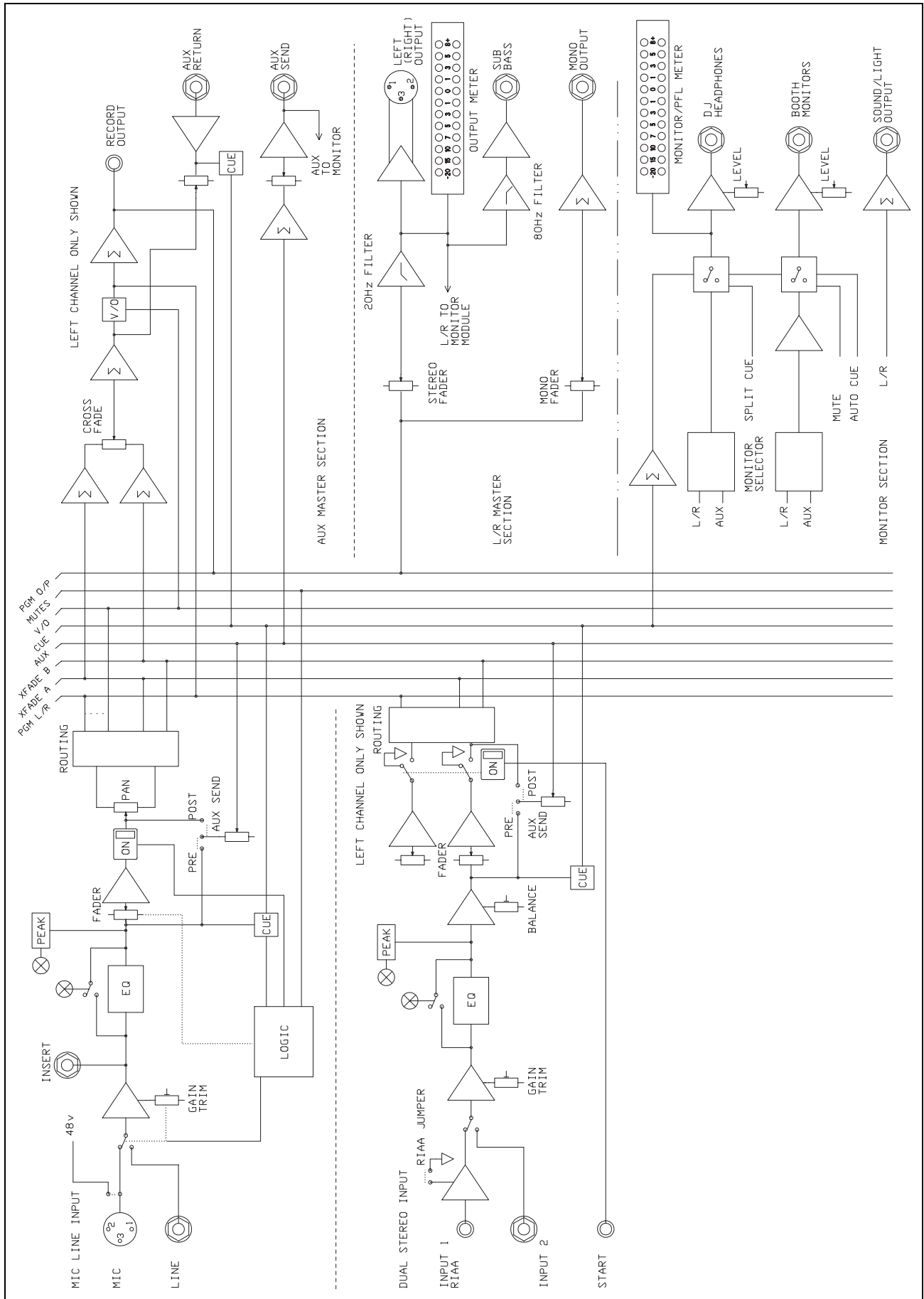


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## **3. System Block Diagram**

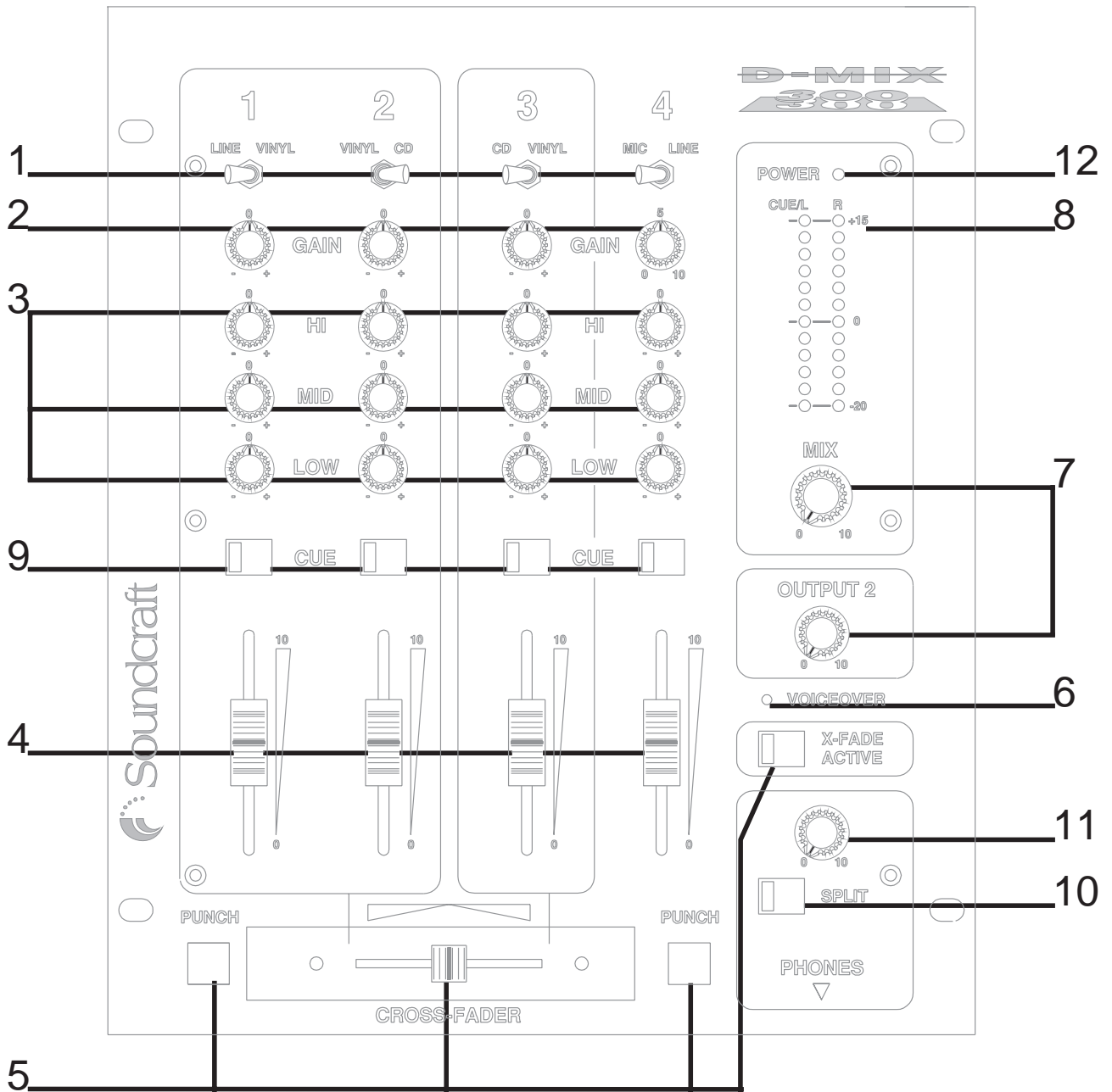
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# D-Mix 1000 System Block Diagram





# **Functionality**



## Input Channels

There are four input channels: channels 1 to 3 are stereo inputs, and channel 4 is a mono input.

Each of the four input channels has similar controls.

**1** Each channel has a choice of 2 input sources, For channel 1 this is a choice between a turntable and a line-level device; for channels 2 and 3 this is a choice between a turntable and a CD, and for channel 4 the choice is between a mic or a line input.

Note: If you leave any of the vinyl inputs unused, and you intend to use the input source select switch on that channel to switch the other input on and off, you must make some input terminator plugs as shown on page 2.8 (2 per unused vinyl input). This is to prevent the unused vinyl input from picking up any stray electrical noise.

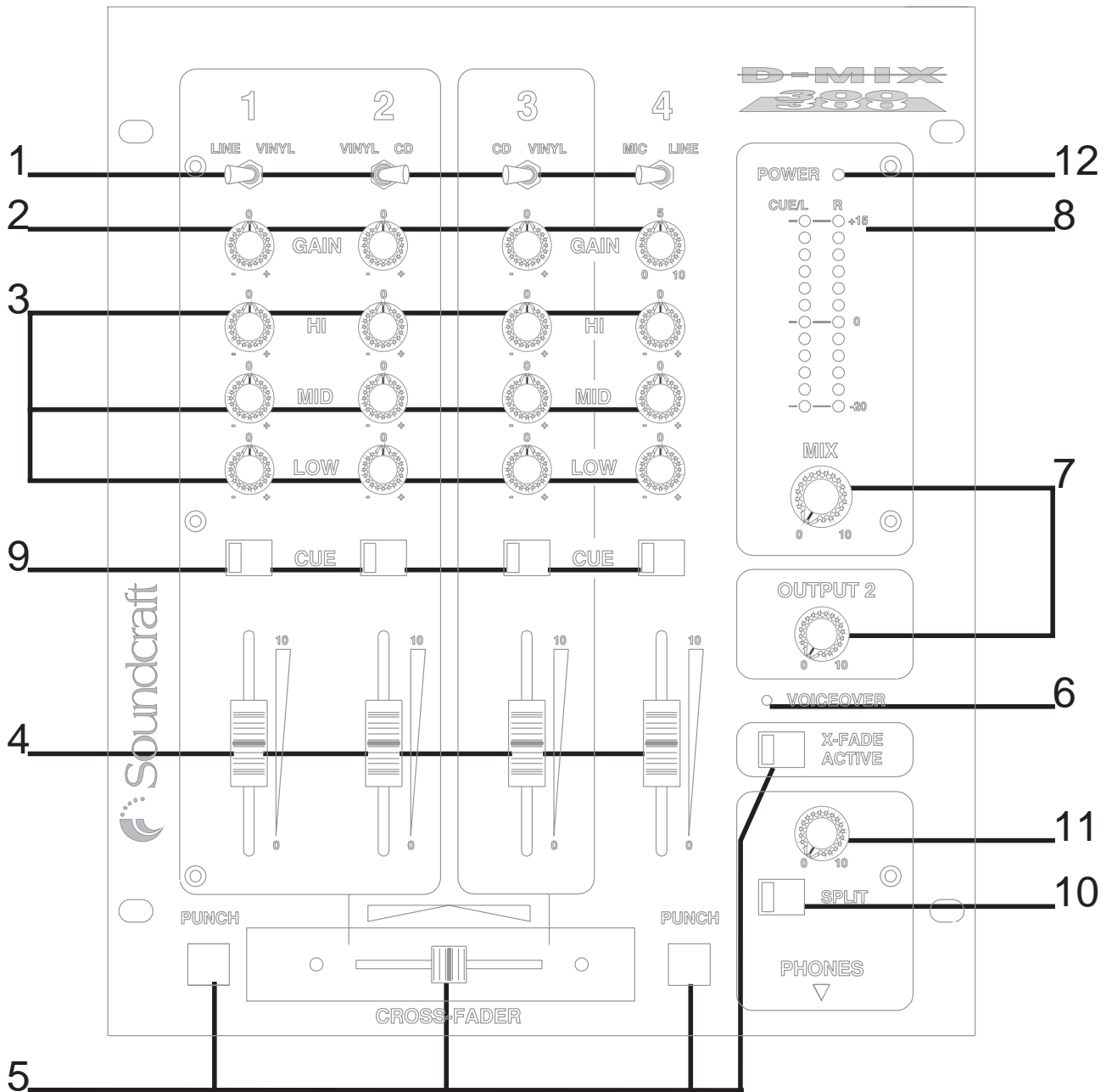
**2** The GAIN control on channels 1 - 3 allows you to “fine tune” the input level by +/-10dB; on channel 4 the mic gain is from +5 to +40dB, and the line gain is from -28 to +7dB.

**3** The EQ section has 3 controls as follows.

- the shelving HI control gives you up to -12/+5dB of cut/boost at 10kHz (+/-8 dB, 12kHz on channel 4)
- the band pass MID control gives you up to -15/+5dB of cut/boost at 1.5kHz (+/-8 dB, 2.5kHz on channel 4)
- the shelving LOW control gives you up to -12/+5dB of cut/boost at 80Hz (+/-8 dB, 125Hz on channel 4)

Note: Channel 4 also has a 100Hz High-Pass Filter to reduce rumble (e.g. from the dance floor), this may be disabled by adding a link to the PCB.

**4** The channel's signal is then fed to the appropriate fader. The level of the signal from each channel is controlled by each individual fader.



## Crossfader and Main Mix System

As you will notice from the front panel paint work, channels 1 and 2 feed the left side of the crossfader, and channel 3 feeds the right side of the crossfader. Channel 4 does not pass its signal to the crossfader, but passes it straight to the main mix.

You have 3 ways of getting the signals from channels 1 to 3 to the main mix (before they get to the main mix they pass through the voice-over circuit - see later). They are as follows.

- Use the CROSSFADER
- Use the PUNCH buttons
- Use only the Channel Faders.

**5** If you want to use the Crossfader and/or Punch buttons then you will have to switch the X-FADE ACTIVE switch on, its internal LED confirms this. In this mode the output of the faders on channels 1 to 3 can only be routed to the main mix via the crossfader and or punch buttons. They work as follows.

- If both punch buttons are OFF, the crossfader decides which side is routed.
- If you press one of the punch buttons then it disables the crossfader, and feeds its side to the main mix.
- If you press both punch buttons then the crossfader is still disabled and both sides are fed to the main mix.

Note, the channel faders must still be up, even when you are using the crossfader/punch buttons.

Also note that the punch buttons do not latch down, therefore if you wish to release the button but still have that side of the crossfader selected you must move the crossfader over before you let go of the button.

If you wish to use only the channel faders you will need to switch off the X-FADE ACTIVE switch: its internal LED will be off when it is not active. In this mode the outputs of faders 1 to 3 are all routed to the main mix. To fade between channels just move the appropriate faders up/down at the appropriate time. The cross fader and punch buttons are completely inoperative in this mode, although the BEAT DETECT LEDS inside the Punch buttons are still active.

## Voice-Over

**6** Channel 1 to 3 are fed through the voice-over circuit before they get to the main mix. The voice-over circuit is controlled by the level of channel 4. When the level of the channel 4 output signal is sufficiently high, the signals from channels 1-3 are dimmed between 0 and 24dB. The amount of dimming can be adjusted via a pot which is accessible via the small hole in the front panel. It is set to off (fully anti-clockwise) at the factory.

## Main Outputs

**7** The Main Mix is output to two stereo outputs via phono sockets. The levels of these two stereo outputs are controlled via the MIX and OUTPUT 2 pots.

**8** The twin 12-LED meters monitor the main mix before the level controls (see also Cue System below). The nominal output level of the D-Mix 300 is -10dBu (see specifications). However, the Mix and Output 2 pots have a gain of 12dB at max. Therefore if the Mix pot is set to maximum the output is +2dBu at 0 on the meter, similarly for output 2.

## Cue System

**9** The Headphones normally follow the main mix, but if any of the four CUE buttons are pressed then the prefade signal for the channel in question is fed to the headphones. In addition the meter displays a mono sum of the Cue signal on the Left meter and a mono sum of the main mix on the Right meter.

**10** The Cue system also has a SPLIT cue facility. When this is selected via the SPLIT switch, a mono sum of the Cue signal is sent to the left Headphone, and a mono sum of the main mix is sent to the right headphone.

**11** The headphone level is controlled via the pot marked 0 to 10.

The headphone amplifier is designed to work with a range of headphone impedances, but.... **EXERCISE EXTREME CAUTION WHEN USING HEADPHONES. TURN THE LEVEL CONTROL RIGHT DOWN BEFORE LISTENING. IT IS POSSIBLE TO DAMAGE YOUR HEARING IF THE LEVEL IS SET TOO HIGH.**

## Power Indicator

**12** The POWER LED shows that the Power Supply Unit is connected to the console and plugged in to the mains.

# **Specifications**

# D-Mix 300 Specification

	Channel	Signal	Conn.	Pin	Nom Level	Max Level	Impedance
Inputs	1	Line	Phono X 2	Centre Pin - Signal Outer Ring- Ground	660mV -1.4dBu	+27dBu	12k $\Omega$
		Vinyl	Phono X 2	Centre Pin - Signal Outer Ring- Ground	5mV @ 1kHz -44dBu	-12dBu/ 1kHz	47k $\Omega$
	2	Vinyl	Phono X 2	Centre Pin - Signal Outer Ring- Ground	5mV @ 1kHz -44dBu	-12dBu/ 1kHz	47k $\Omega$
		CD	Phono X 2	Centre Pin - Signal Outer Ring- Ground	2V +8.2dBu	>+40dBu	10k $\Omega$
	3	CD	Phono X 2	Centre Pin - Signal Outer Ring- Ground	2V +8.2dBu	>+40dBu	10k $\Omega$
		Vinyl	Phono X 2	Centre Pin - Signal Outer Ring- Ground	5mV @ 1kHz -44dBu	-12dBu/ 1kHz	47k $\Omega$
	4	Mic	XLR	Pin 1 - Ground Pin 2 - Signal + (Hot) Pin 3 - Signal - (Cold)	25mV -30dBu	+12dBu	2.1k $\Omega$
		Line	1/4" Jack	Tip - Signal + (Hot) Ring - Signal - (Cold) Sleeve - Ground	1.23V +4dBu	>+30dBu	20k $\Omega$
Outputs		Mix	Phono X 2	Centre Pin - Signal Outer Ring- Ground	-10dBu	>+22dBu	100 $\Omega$
		Output 2	Phono X 2	Centre Pin - Signal Outer Ring- Ground	-10dBu	>+22dBu	100 $\Omega$
		Headphones	1/4" Jack	Tip - Left Ring - Right Sleeve - Ground	(Max levels before clipping) +21dBu into 600 $\Omega$ (125mW) +7dBu into 8 $\Omega$ (380mW)		



# D-Mix 300 Specification

Frequency Response	Inputs 1-3 to any output (input gain centred, EQ flat):	+0/-0.5dB, 20Hz - 20kHz
T.H.D. and Noise	Line I/P to Mix O/P (measured at +20dBu Output):	< 0.04% THD @ 1kHz
Mic Input E.I.N.	22Hz - 22kHz bandwidth, unweighted:	< -127.5dBu (150Ω source)
Bus Noise	Mix Output; all channels routed, input faders down, Mix fader clockwise	< -80dBu
Crosstalk	1kHz, +20dBu input signals Input Fader Attenuation: Master Output Attenuation:	better than -85dB better than -83 dB
CMRR	Mic Input (channel 4)	-80 dB @ 1kHz @ max gain
EQ (Ch 1-3)	HI: 10kHz, +5, -12dB MID: 1.5kHz, +5, -15dB LOW: 80Hz, +5, -12dB	
EQ (Ch 4)	HI: 12kHz, +/-8dB MID: 2.5kHz, +/-8dB LOW: 125Hz, +/-8dB	
HP Filter (Ch 4)	100Hz, 12dB/octave.	
Metering	Stereo, 12-LED bargraph: displays L & R/ Cue & Mix Sum	
Power Consumption	9W typical	
Weight	3.8 kg	
Operating Conditions		
Temperature Range	+10°C to +30°C	
Relative Humidity	0% to 80%	

