

DX500

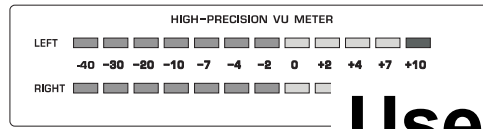
PRO MIXER

BEHRINGER®
ULTRA-LOW NOISE DESIGN

PRO MIXER DX 500
PROFESSIONAL DJ MIXER WITH 12 SECOND DIGITAL SAMPLER



MIC INPUT



User's Manual



Version 1.2 July 2000

Channel 1: GAIN (CLIP), TREBLE (KILL), MID (KILL), BASS (KILL), PHONO / LINE selector, PFL 1 (TO SAMPLER), PUNCH 2, MIC INPUT.

Channel 2: GAIN (CLIP), TREBLE (KILL), MID (KILL), BASS (KILL), PHONO / LINE selector, PFL 2 (TO SAMPLER), PUNCH 2, ULTRA-HIGH QUALITY FADER.

Channel 3: GAIN (CLIP), TREBLE (KILL), MID (KILL), BASS (KILL), PHONO / LINE selector, PFL 3 (TO SAMPLER), PUNCH 3, ULTRA-HIGH QUALITY FADER.

Master/Global Controls: MAIN OUT (CLIP), ZONE OUT, PHONES, PFL MAIN, BALANCE, SAMPLER OUT (MIN/MAX), SPEED (75%, 50%, 100%), SINGLE / REPEAT, PLAY / RECORD, START / STOP, PHONES.





EG-Declaration of Conformity



INTERNATIONAL GmbH

acc. to the Directives 89/336/EWG and 73/23/EWG

We,

BEHRINGER INTERNATIONAL GmbH

Hanns-Martin-Schleyer-Straße 36-38

D - 47877 Willich

Name and address of the manufacturer or the introducer of the product on the market who is established in the EC

herewith take the sole responsibility to confirm that the product:

PRO MIXER DX500

Type designation and, if applicable, Article-N°

which refers to this declaration, is in accordance with the following standards or standardized documents:

- | | |
|--|--|
| <input checked="" type="checkbox"/> EN 60065 | <input checked="" type="checkbox"/> EN 61000-3-2 |
| <input checked="" type="checkbox"/> EN 55020 | <input checked="" type="checkbox"/> EN 61000-3-3 |
| <input checked="" type="checkbox"/> EN 55013 | <input checked="" type="checkbox"/> EN 55022 |

The following operation conditions and installation arrangements have to be presumed:

acc. to Operating Manual

BEHRINGER
INTERNATIONAL GmbH
Hanns-Martin-Schleyer-Str. 36-38
D-47877 Willich, Mercurstraße II
Tel.-Nr. 0 21 54 / 92 06-0
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B. Nier, President

Willich, 01.07.1998

Name, address, date and legally binding signature of the person responsible

SAFETY INSTRUCTIONS

CAUTION: To reduce the risk of electrical shock, do not remove the cover (or back). No user serviceable parts inside; refer servicing to qualified personnel.



WARNING: To reduce the risk of fire or electrical shock, do not expose this appliance to rain or moisture.



This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure - voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Read the manual.

DETAILED SAFETY INSTRUCTIONS:

All the safety and operation instructions should be read before the appliance is operated.

Retain Instructions:

The safety and operating instructions should be retained for future reference.

Heed Warnings:

All warnings on the appliance and in the operating instructions should be adhered to.

Follow instructions:

All operation and user instructions should be followed.

Water and Moisture:

The appliance should not be used near water (e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool etc.).

Ventilation:

The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa rug, or similar surface that may block the ventilation openings: or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

Heat:

The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliance (including amplifiers) that produce heat.

Power Source:

The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

Grounding or Polarization:

Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

Power-Cord Protection:

Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles and the point where they exit from the appliance.

Cleaning:

The appliance should be cleaned only as recommended by the manufacturer.

Non-use Periods:

The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

Object and Liquid Entry:

Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

Damage Requiring Service:

The appliance should be serviced by qualified service personnel when:

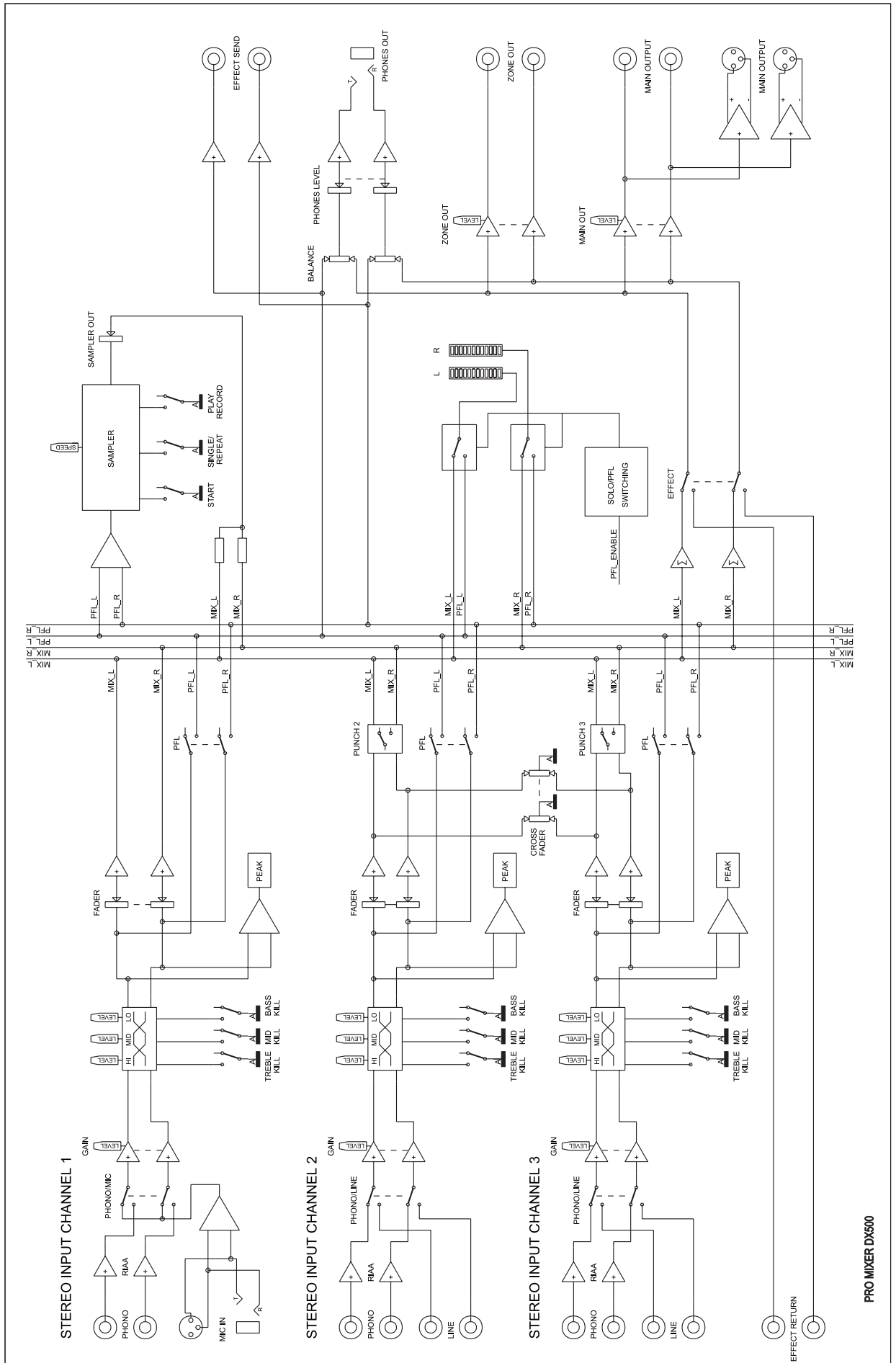
- The power supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped, or the enclosure damaged.

Servicing:

The user should not attempt to service the appliance beyond that is described in the Operating Instructions. All other servicing should be referred to qualified service personnel.



BLOCK DIAGRAM



PRO MIXER DX600

DX500

Professional DJ mixer with a total of 6 stereo sources on 3 dual-input channels

- ▲ Internal 12 second digital sampler with loop function offers you new creative possibilities
- ▲ High class microphone input with peak indicator
- ▲ High precision phono pre-amps for bass power and crystal clean sound
- ▲ Ultra-musical 3-band EQ with Kill switches for each band gives you all the creative power
- ▲ Ultra-low noise design comparable to studio grade consoles
- ▲ Replaceable and ultra-high quality crossfader guarantees 100.000 lifecycles
- ▲ Large Punch buttons at the crossfader – your big plus for creative mixing!
- ▲ PFL switches with status LEDs on all channels
- ▲ A Balance control allows you to blend between Main and PFL on the phones section
- ▲ External effect facility with send and return
- ▲ Additional, adjustable Zone output allows you to control the level of a monitor or secondary area
- ▲ Main outputs on professional balanced gold-plated XLR and on RCA connectors for parallel recording
- ▲ High precision 12-digit LED VU meters
- ▲ High-quality 60 mm channel faders as found in professional recording consoles
- ▲ Rugged external power supply ensures maximum signal integrity
- ▲ Top quality components ensure superb audio performance and maximum endurance
- ▲ Super-rugged construction ensures long life, even under the most demanding conditions
- ▲ Manufactured under ISO9000 certified management system

E

PRO
MIXER

FOREWORD

Dear Customer,

Welcome to the team of PRO MIXER users and thank you very much for expressing your confidence in BEHRINGER products by purchasing this unit.

It is one of my most pleasant tasks to write this letter to you, because it is the culmination of many months of hard work delivered by our engineering team to reach a very ambitious goal: presenting an outstanding mixer for flexible use in studios, clubs or at home. The task to develop our new PRO MIXER series certainly meant a great deal of responsibility, which we assumed by focusing on you, the discerning user and musician. It also meant a lot of work and night shifts to accomplish this goal. But it was fun, too. Developing a product usually brings a lot of people together, and what a great feeling it is when everybody who participated in such a project can be proud of what we've achieved.

It is our philosophy to share our joy with you, because you are the most important member of the BEHRINGER family. With your highly competent suggestions for new products you've greatly contributed to shaping our company and making it successful. In return, we guarantee you uncompromising quality (manufactured under ISO9000 certified management system) as well as excellent technical and audio properties at an extremely favorable price. All of this will enable you to fully unfold your creativity without being hampered by budget constraints.

We are often asked how we can make it to produce such high-grade devices at such unbelievably low prices. The answer is quite simple: it's you, our customers! Many satisfied customers means large sales volumes enabling us to get better conditions of purchase for components, etc. Isn't it only fair to pass this benefit back to you? Because we know that your success is our success, too!

I would like to thank all people whose help on "Project DX500" has made it all possible. Everybody has made very personal contributions, starting from the designers of the unit via the many staff members in our company to you, the user of BEHRINGER products.

My friends, it's been worth the trouble!

Thank you very much,

A handwritten signature in black ink, appearing to read 'U. Behringer', with a long horizontal flourish extending to the right.

Uli Behringer


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1. THE MANUAL

We know that reading manuals can be a bore, and that you are probably impatient to get started with your new DX500 mixer, if you haven't already! It is true that with a modicum of knowledge about audio equipment you could get up and running successfully, but chances are you will not be able to exploit the full potential of your DX500 (or yourself) until you have some of its more advanced features explained. Please, please at least read through all the text in this section, which contains important safety tips to help preserve you and your valuable equipment.

 **You'll get nowhere with your DX500 unless it is properly connected to your music sources, power amplifiers, tape recorder etc. We strongly advise that you never use cheap connecting plugs for audio - use only gold-plated ones, as these are best at resisting corrosion. Run any mic on a balanced line to minimise unwanted interference, and check those mains plugs for loose cable clamps or electrical contacts frequently!**

Good quality plugs are extremely important, all the more so where connections are left untouched for long periods. (Unplugging leads frequently can help to keep contacts clean by mechanical abrasion). Also moisture in a humid nightclub greatly accelerates the buildup of oxide (e.g. rust) on metal contacts.

 **Never patch line level devices into your highly sensitive phono inputs. Phono cartridge output is measured in millivolts. CD and tape players are of the order of magnitude of a volt. With line levels you are looking at signals 100 times more powerful than a phono pre-amplifier is designed to handle !**

 **Please always ensure that the mixer power supply is securely connected to the mixer before you turn on the mains supply. Power amplifiers should always be turned on last of all in order to minimize switch-on thumps, which can easily damage loudspeakers. Check that there is no signal going through the DX500 when the amps are switched on in order to avoid any sudden volume surges. Best turn down all output faders and rotary controls first !**

This manual is a combination of figures and text. Together these precisely define and describe all the functions of your DX500. For reasons of clarity you might find certain text or subject matter appears more than once in the manual. This means we pay a little more in printing and publishing costs, but it does mean that each section is self-contained and therefore easier for you to read.

Sometimes technical information is provided in brackets. Don't worry - you don't need to know what the figures mean in order to have success with your DX500. This info is included for the benefit of sound engineers, not DJ's! The manual is also crammed full of creative ideas on how to play your DX500 to full advantage. Try to read it from cover to cover at least once. Otherwise you'll never know what possibilities you might be missing out on!

2. PRO MIXER OVERVIEW

The DX500 is a multi-functional stereo mixer designed for all applications where pre-recorded music is mixed and played. It is equally at home, in dance clubs, personal DJ setups and broadcast studios. It has three stereo music channels. The first of these can accept a DJ mic. The mic channel is routed to the main mix directly. Music channels 2 and 3 pass through a super-smooth cross fader.

2.1 Highly accurate MAIN and PFL VU bargraph meters

The main output level is constantly monitored by a pair of highly accurate VU bargraph meters ^[14]. In addition, all channels have PFL (Pre-Fader-Listen). This means that you can see (on the bargraph meters) and hear (on headphones) ^[31] the music you are about to play - essential if you want to come in at the same level as and in time with the music currently playing. All professional DJ's strive to do this, often overlapping two tracks, or slowly cross fading between them. (These and other DJ mixing tricks will be explained elsewhere in this manual.)



2.2 How will YOU use YOUR DX500?

Your DX500 is a creative instrument. Learn to play it well. If possible, experiment with it “off-line” – before you use it in earnest in a club or studio. It offers you many creative music mixing possibilities, with its ultra DJ-friendly control surface. In addition many special features have been included to enhance the flexibility, creativity and ease of operation of your mix. For example, the on-board CD quality digital sampler lets you capture and edit a sound with instant replay available at the touch of a button. Loop a breakbeat, stutter a vocal hook, trigger an ambient effect. Also you might notice that kill switches are included on every channel, making professional sounding dub EQ effects child’s play. But first connect the external power supply unit to the PSU input [33] of your DX500, plug it in and switch it on [32] (always use this sequence).

We have given particular attention to metering your music with PFL offered on every channel [11]. In addition all channels have clip LEDs [2] constantly looking for input overload distortion. You will also see that many of the switches on your DX500 have an associated status LED, to let you know when it is engaged. Just another way in which we try to make life easier for you, the DJ.

2.3 PSU (Power Supply Unit)

Any amplifier circuit is limited in its transient response by the available current. Every mixer has numerous line level operational amplifiers (op-amps) inside. When being driven hard, many desks begin to show signs of stress due to power supply limitations. Not so with the PRO MIXER DX500. The sound will always stay clean and crisp right up to the operating limits of the op-amps themselves, thanks to our generous 30 W external power supply unit.

Please connect the PSU with the PRO MIXER DX500 PSU connector [33] on the rear panel of your mixer and turn it on with the POWER ON switch [32].


 **Do not connect the PSU to the PRO MIXER while the PSU is connected to the mains supply. Connect switched-off desk and PSU first before you connect the PSU to the mains supply.**

2.4 Warranty

Please take time to have the warranty card filled out completely by your specialized dealer and return it within 14 days after the date of purchase, so as to be entitled to benefit from our extended warranty. You will find the serial number [39] of your DX500 on the rear panel.


2.5 Packing

Your BEHRINGER PRO MIXER DX500 was carefully packed in the factory and the packaging was designed to protect the unit from rough handling. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred in transit.

 **If the unit is damaged, please do not return it to us, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted. Shipping claims must be made by the consignee.**

3. INPUT CHANNELS

Plug a phono (turntable) or line source (CD player etc.) into an appropriate input [38]. Plug a dynamic microphone into the DJ mic input [1] on the front panel (if required). Play music or speech at a typical volume to check out and set up the channel.

 **The mic pre-amp is of the same quality as those found in our award-winning EURODESK studio consoles. This gives an incredibly warm, clear and noiseless performance. Mic inputs are on balanced XLR and 1/4" jacks respectively. Balanced operation gives best noise performance. Unbalanced microphones need to have XLR pins 1 and 3 shorted.**

3.1 Input selection


Inputs are on the DX500's back panel. Your input source is selectable between a pair of stereo inputs by the toggle switches [8] and [15] immediately above the channel fader [9]. The choice of inputs depends on which of channels 1 through 3 you are looking at. The mixer is set up as follows:

Channel	Input 1	Input 2
1	MIC*	PHONO/LINE**
2	PHONO 2	LINE 2
3	PHONO 3	LINE 3

Tab. 3.1: Channel inputs

* If MIC is selected the signal is fed equally into both sides of the stereo channel i.e. "center-panned".

** Here the choice phono / line is made by a switch on the back panel [37].

 **Never patch line level devices into your highly sensitive phono inputs. Phono cartridge output is measured in millivolts. Line level signals are of the order of magnitude of a volt. With line levels you are looking at a signal up to 100 times more powerful than the phono pre-amplifier is designed to handle!**




If for some reason your turntable has a built-in RIAA pre-amp, you should patch it into a line level input.



A mix could include three music sources (e.g. turntables, CD players, tapes or a combination spread over channels 1 through 3) and the sampler for creative DJ work, or a mono DJ mic and two stereo music sources. Only the phono (and mic) inputs are device-specific, being matched exactly to your cartridge (or mic) response.

3.2 Gain setting

 **Gain is dependent on EQ. Set up your EQ before fine-tuning gain.**

3.2.1 Quick way

Channel input level is continuously monitored by an CLIP-LED [2]. This CLIP LED lets you know if you're about to overload the channel (it lights at +18 dB). Turn up the channel GAIN [3] control until this LED is flashing only very intermittently. Back off gain until the light no longer illuminates.

 **Watch the output meters! Remember – distortion is not volume, and any distortion introduced before the power amplifiers and speakers will worsen your sound and cause amps and speakers to clip sooner.**

3.2.2 Gain setting by using PFL

Pre-Fader-Listen is the professional way to set gain, and we always recommend you do it if you have the time. Engaging PFL [11] temporarily sends the channel signal to the output meters. Adjust GAIN until the PFL meter is hitting the range between 0 and +7 dB. Probably it's best to aim for +4 dB peak readings, allowing you to whack the channel faders full on (+6 dB) without output overload (+4 +6 = +10 dB per channel output). Once gain has been set for a channel, release its PFL button.

 **Normally you will want to PFL only one channel at a time.**

3.3 Equalizer

Channel EQ comprises three control knobs and three switches. The tone controls enable cut and boost of TREBLE [4], MID [5]; and BASS [6] frequencies respectively (see below for specs.) EQ can sweeten or effect a track, with the fading out and in of frequency bands being very popular.

	EQ	Frequency	Range	Centre
Treble	Shelving EQ	10 kHz	+/- 15 dB	OFF
Mid	Peaking EQ	1600 Hz	+/- 10 dB	OFF
Bass	Shelving EQ	50 Hz	+/- 10 dB	OFF

Tab. 3.2: EQ frequency bands

When the KILL switches [7] are depressed the corresponding tone control is defeated and that band is attenuated. It is as if the tone control is turned fully counter-clockwise. This is particular useful if you want to bring in a new piece of music one band at the time. It is also possible for instance to mix the mid frequency band of one track with the high and low of another. You can then reverse that very quickly.

4. MASTER SECTION

4.1 Output

Channel output level is controlled by a precision stereo 60 mm fader [9].



The faders used are true-log faders. These give ultra-smooth operation even at low levels, on a par with those used in the most expensive studio consoles.

Channel 1 goes directly into the mix. Channels 2 and 3 go to opposing ends of the cross fader.

4.2 Cross fader

Channels 2 and 3 are selected/blended by using a cross fader, modestly legended ULTRA-HIGH QUALITY FADER [17]. When set fully to the left, only Channel 2 is heard in the mix, and vice versa. We know how much you rely on the cross fader for mixing. For this reason we have ensured that it is incredibly durable and smooth-acting.



The cross fader is an ultra-high quality fader. Its monorail design means that you can expect a massive 100,000 smooth operations before wear & tear even becomes a factor.

4.3 Transforming with Punch

Transforming is a DJ term used to describe the inserting of a piece of music rhythmically into another piece. When the cross fader is to one side of the middle pushing the punch button on the opposite side will bring up the level of that side of the cross fader. This way it is possible to punch in a piece of music, typically a certain drum track or lyric, into the playing piece of music. Traditionally this is done by rapidly pushing the fader up from minus infinity to 0 or +6 dB or moving a cross fader from one side to the middle to give a stuttering or “gated” effect. These methods are still valid, but if you are looking for instantaneous transforming check out our ergonomic alternative – a pair of big PUNCH buttons, operating on channels 2 [12] and 3 [30]. We are sure you will grow to love their speed and ease of operation.



This is the first time we have come across any really BIG buttons on the DX500. At this point it's worth pointing out that all the smaller switches on your DX500 are latching. This means they stay down until you hit them again. Big buttons are all non-latching, or momentary in operation. This means that they are only active when your finger (or other appendage) is actually holding them down, like the keys on a MIDI keyboard. These are ideal for executing transformations or sample-triggering, as you will very quickly find as you get into using your DX500.





Try running a rhythm track through channel 2 (cross fader fully to the left). Now use the PUNCH 3 button to manually chop in a sustained signal like orchestral music, ambient sounds, noise, whatever.

4.4 Effects loop

Between faders 2 and 3 lies the EFFECT button [16]. Depressing the EFFECT button will interrupt the signal flow between the main mix and MAIN OUT / ZONE OUT. You can send the output of the DX500 to an external signal processing device by using the EFFECT IN/OUT SEND [40] and return the processed signal via the EFFECT IN/OUT RETURN [41]. Use this feature to connect an equalizer, limiter, denoiser or even an echo or delay. When the effect button is depressed the corresponding LED lights up.



To prevent accidental cancellation of the output signal it is recommended to connect the effect output directly to the effect input with a stereo cinch cable or with two bridges in case you do not insert any effects devices.



At the effect send the master signal is always present. If you are not using the send for an effect you can use it either as a record out or as a feed for a light controller. Because the send is pre-fader the recording is unaffected by the setting of the main volume or zone volume.

4.5 Outputs

Stereo outputs include MAIN [34] and [35] and ZONE [36] (Max. output +28 dBu balanced, +22 dBu unbalanced). Both are on cinch pairs, with MAIN additionally being available on professional balanced XLR-type connectors. Level to these outputs is controlled by a pair of rotary controls marked MAIN OUT [18] and ZONE OUT [19], top right on the top panel. The MAIN OUT level is always displayed on the precision VU bargraph meters unless PFL is deployed.



Watch the output meters! Remember – distortion is not volume, and any distortion introduced before the power amplifiers and speakers will worsen your sound and cause amps and speakers to clip sooner.

MAIN would normally feed the main P.A. system (or Hi-Fi amp if you are mixing at home). The ZONE stereo output is designed to be used for feeding the mix into a separate sound system such as DJ foldback, or a different room or area in a dance club.

5. PFL AND HEADPHONES

5.1 PFL: Pre-Fader Listen

When any PFL button [11] is depressed the main meters [14] will change to displaying PFL level. PFL is the way to hear, cue and set up a piece of music before you play it out in the mix.



In the club environment, things get messy. You can't hear any sound in isolation, either on a foldback system or headphones, because both are to some extent drowned out by the main P.A. system. You should, however, be able to hear the PFL signal loud enough to detect the beat, cue starts etc. What you can't do is to judge by ear exactly what level the next track will come in at. For that you must use your eyes, and the highly-accurate bargraph VU meters.

PFL is also used to accurately set input GAIN. With a channel's PFL button engaged (DOWN) you can accurately set the input GAIN by making a typical noise and observing the main meters.



If you are in the habit of slamming the channel faders all the way up (+6 dB), try to keep your MAIN OUT control [18] at a compensatory lower level to make sure you don't risk distortion. To do this successively engage and disengage PFL on the channel currently playing. Adjust MAIN OUT until the PFL and MAIN meter readings are identical. With channel faders at +6 dB and main output level at -6 dB your DX500 has unity gain from input (post gain) to output. Now PFL and MAIN metering should show the same level, allowing direct visual comparison between outgoing (playing) and incoming (cue) tracks.

5.2 Headphones – read carefully!

The PHONES section lies to the far right hand side of the DX500, below the MAIN and ZONE OUT controls. PHONES [20] controls headphones output level and the PHONES jack [31] is placed at the front of the DX500. Right, that's the easy bit explained. Now pay attention. BALANCE [21] controls the blend of the PFL and MAIN mix signals. This gives you the interesting possibility of hearing both the outgoing (MAIN, pre MAIN OUT control) and incoming (PFL) tracks simultaneously through a single output, via your headphones.

6. SAMPLER

A sampler is a digital device for recording and playing back audio. Your DX500 sampler enables you to capture and replay a fragment of audio. This can be anything: a drum pattern or a vocal hook. Up to 24 seconds of audio can be recorded, repeated and re-tuned.

6.1 Record mode

The sampler section is sited bottom right on your DX500. Two (twin-LED illuminated) mode buttons determine the sampler's status. With PLAY/RECORD [27] you select between playback and record. The selected mode is indicated by the illumination of one of the two status LEDs [26]. In RECORD mode the sampler is always listening to the PFL bus. Any channel with PFL depressed is (in addition to being sent to the bargraph meters and headphones output) sent to the input of the sampler. In RECORD mode the sampler is primed to begin recording once the big START/STOP key [29] has been hit. The sampler stops recording when the START/STOP key is hit again. For the duration of the START/STOP keypress, the sampler has been recording, with a maximum of 24 seconds at 50% or 12 seconds at 100% speed. The ACTIVE LED [28] lets you know if anything is routed to the sampler input (i.e. whether any PFL button is down).


 **During recording sampler input level is displayed on the bargraph meters [14] (remember - your meters are looking at PFL). The sampler will overload at +7 dB. The onset of digital distortion, unlike analog, is sudden and horrid. Avoid and always monitor the PFL meter.**

6.2 Playback mode

Once you have captured a piece of audio, you can play it back by first switching to PLAY mode [27] then pressing the START/STOP key [29]. Playback mode can be selected by the self-explanatory twin-LED [24] illuminated SINGLE/REPEAT switch [25]. In single mode the sample is played only once. Pressing the START/STOP key while the sample is playing will start the sample again. This enables you to create a stuttering effect. In repeat mode pressing the START/STOP key while playing will stop the circle. Playback may be varisped from 50% to 100% by the SPEED control [23], while playback level can be adjusted by the SAMPLER OUT control [22].

 **Sampler operations do not affect the mix from the three desk channels.**

 **With the speed control it is also possible to record slower or faster to create some real radical effects.**

 **When recording drums, start and stop on the first beat of a bar. Now when you playback in REPEAT mode you should generate a seamless rhythm track.**

7. CONNECTIONS


7.1 PRO MIXER DX500 connections

Follow us on a walk along the connection on the rear panel of your PRO MIXER, starting left:

- 34 **Main outputs.** Balanced XLR, wired pin 1 = ground/screen, pin 2 = hot (+ve) and pin 3 = cold (-ve).
- 35 **Main outputs.** RCA sockets, unbalanced.
- 36 **Zone outputs.** RCA sockets, unbalanced.
- 38 **Phono/line inputs.** Unbalanced RCA sockets, to connect all input devices. e = ground/screen.
- 40 **Effect send.** Master signal always present on this RCA connector.
- 41 **Effect return.** RCA sockets to return the processed signal, this signal is sent directly to the MAIN OUT and ZONE OUT controls.

And on the front panel:

- 1 **Mic input.** Balanced XLR, wired pin 1 = ground/screen, pin 2 = hot (+ve) and pin 3 = cold (-ve).
- 13 **Mic input.** 1/4" jack socket, tip = hot (+ve), ring = cold (-ve) and sleeve = ground/screen.
- 31 **Phones.** 1/4" jack socket, tip = left signal, ring = right signal and sleeve = ground/screen.

 **Please ensure that only qualified persons install and operate the PRO MIXER DX500. During installation and operation the user must have sufficient electrical contact to earth. Electrostatic charges might affect the operation of the PRO MIXER DX500!**

7.2 Plug soldering guide

You will need a lot of cables for different purposes – see the following figures to make sure you have got the right ones.

Use custom-made RCA cables for all connections which use RCA sockets (centre post = signal (+ve) and sleeve = ground/screen). If your power amplifier is equipped with professional XLR inputs use the balanced XLR outputs of the DX500 for optimal performance. Buy them either custom built or wire them as follows:

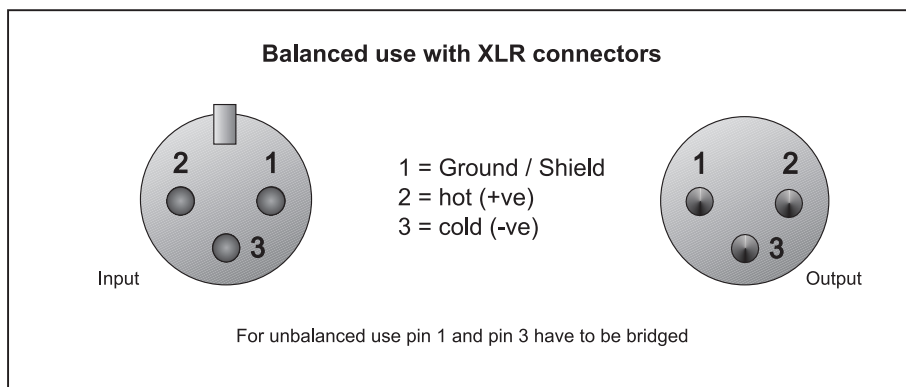


Fig. 7.1: Balanced XLR connectors

The Microphone jack input can be used either balanced or unbalanced as shown.

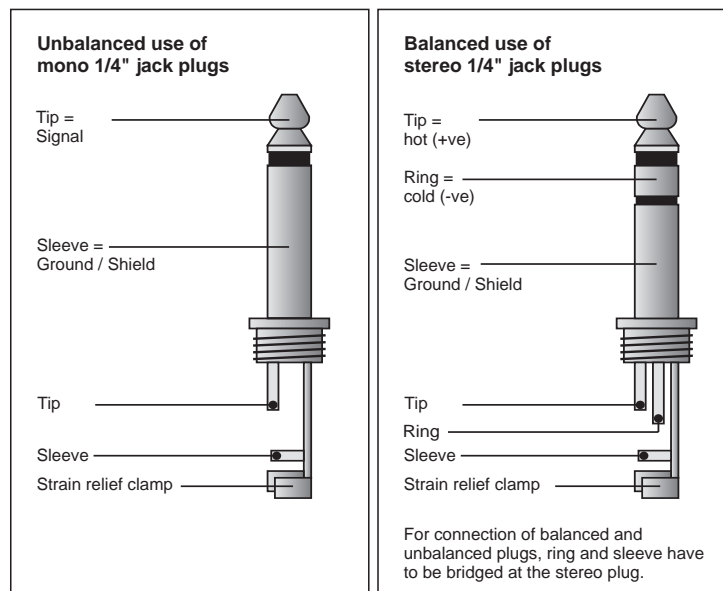


Fig. 7.2: Un-/balanced jack plugs

Most headphones come with their cable and plug already assembled but if you have to do it yourself sometime this is how. It is also possible in a crisis situation to tap this signal for use as a (parallel) feed for a line level device.

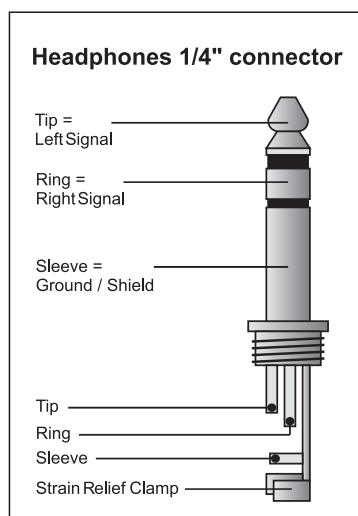


Fig. 7.3: Headphones connector

8. GLOSSARY

Ambient Music

atmospheric/lacking in a strong beat (e.g. can be played with a drum track, can be rhythmically gated etc.)

Balance

relative levels of left/right in a stereo pair, usually controlled by a panoramic potentiometer (panpot)

BPM

Beats Per Minute

Channel

input strip on a mixing desk

Clip, Clipping

overload, severe distortion

Compressor

device or program for limiting dynamic range (increasing energy)

Cross fader

fades in one music track while simultaneously fading out another

Cue

headphone feed

Cueing

getting music ready to come in at pre-arranged point

Cut Switch

silences audio

dB (decibel)

a unit of measurement, ratio of two voltages ($\text{dB} = 20 \log (V1/V2)$), (dBu = voltage ratio relative to 0.775 V RMS)

DI (Direct Injection)

connecting an electric instrument directly to the console via a DI-Box, converting the high level unbalanced signal (from the instrument) into a low level balanced signal (for the console)

DJing

sequencing music tracks e.g. for dancing audience

Drum machine

electronic drum instrument

Echo

device or program for adding repeats

Effects (abbr. FX or EFX)

devices that alter the original ('dry') sound or add something to it, e.g. delay

Equalizing

the use of filters for cutting or boosting selected frequencies

Exciter/Enhancer

device or program for improving treble and bass intelligibility

Expander

(see Noise Gate)

Fader

linear potentiometer with logarithmic response

Feedback (howlround)

unstable circuit (e.g. mic/speaker, input/output) where a signal is able to return to an input from an output, causing successive cycles of progressively higher gain (avoid it by e.g. not using a mic close to a speaker driven from the mic's own signal)

Filter

device or program for adding or removing removing part of frequency bandwidth e.g. for dramatic effect

Flanger/Chorus

device or program for adding short modulated echoes

Gain

degree of amplification

Headroom

signal range between nominal level and clipping

Incoming (cue) track

music being auditioned prior to being played

Kill switches

switches for removing frequency bands

Limiter

(see Compressor)

Line level signals

signals from low impedance sources (-10 to +6 dBu)

Lo(w) Cut (= High Pass) Filter

cuts off low frequencies

MCing

adding dialogue to a sequence of music

MIDI

Musical Instrument Digital Interface - the language used by 99% of all electronic musical devices and programs

Mixdown

process by which a multitrack recording is combined into e.g. one or two channels

**Mixing**

sequencing music to form continuous flow

Mute

(to engage) button for signal muting

Mute Switch

(see Cut Switch)

Noise Gate

device or program for auto-muting

Normal

connect an output to an input via breakable link

Outgoing (mix) track

music currently playing

Parametric EQ

EQ whose frequency can be swept e.g. for dramatic effect

PFL

Pre-Fader-Listen

Phantom Power

+48 V DC voltage for powering condenser mics

Phase coherence

degree to which L & R signal are synchronized

Phase correlation

degree of mono compatibility of L & R signal

Pot or potentiometer

a variable, usually rotary voltage divider used e.g. for gain, frequency, quality or bandwidth control

Rapping

adding dialogue to a rhythmic track

Recorder

device or program for recording and playing back sounds (e.g. tape, hard disk)

Regeneration

(see Feedback)

Resonance

fast feedback

Reverb

device or program for adding reverb

Route

signal path

RPM

Revolutions Per Minute

Sampler

device for digitally storing and playing back sound

Scratching

manually spinning vinyl discs e.g. backwards and forwards

Sequencer

device or program for recording and playing back compositions (see MIDI)

Slipmat

Fabric turntable mat which enables turntable to spin while DJ holds record stationary. Let go record for a fast start. Gets over problems of slow turntable start.

Solo

solo in place, stereo image retained

Source

signal source

Spatial Enhancer

psycho-acoustic device or program for making stereo seem to come from beyond the area between the loudspeakers

Synthesizer

electronic musical instrument

Tempo

(see BPM)

Transforming

chopping up a music signal by using mutes or gates etc.

Transient

a transitory (extreme) rise in signal level

Trimpot

variable gain potentiometer

Varispeed

control for varying playback speed

Wet signal

mix signal with effects added

9. SPECIFICATIONS

MIC INPUT CHANNEL

Mic input	Electronically balanced, discrete input configuration
Gain	+20 to +40 dB
Frequency response	10 Hz to 35 kHz, +/- 3 dB
THD	0.012 % typ. @ -30 dBu, 1 kHz
S/N ratio	> 78 dB

STEREO INPUT CHANNELS

Phono/line input	unbalanced input
Gain	
Line	-10 to +12.5 dB
Phono	+30 to 52.5 dB
Frequency response	
Line	10 Hz to 62 kHz, +/- 3 dB
Phono	20 Hz to 20 kHz, RIAA
THD	
Line	0.008 % typ. @ 0 dBu, 1 kHz
Phono	0.02 % typ. @ -30 dBu, 1 kHz
S/N ratio	
Line	> 81 dB
Phono	> 75 dB
Crosstalk	
Line (L-R)	< -77 dB
Phono (L-R)	< -76 dB
EQ	
Low	50 Hz, +/- 10 dB
Mid	1600 Hz, +/- 10 dB
High	10 kHz, +/- 15 dB

CONNECTORS

Master out	
Cinch	0 dB
XLR	+6 dB
Zone out	
Cinch	0 dB (max. 10 dB gain)
Effect send	
Cinch	-6 dB

SAMPLER

Sample frequency	16 kHz (speed control at 100%)
Quantization	4 bit ADPCM

POWER SUPPLY

Mains Voltages	USA/Canada	120 V ~, 60 Hz, PSU MXUL 2
	U.K./Australia	240 V ~, 50 Hz, PSU MXEU 2
	Europe	230 V ~, 50 Hz, PSU MXEU 2
	General Export Model	100 - 120 V ~, 200 - 240 V ~, 50 - 60 Hz
Power supply unit		
Model MXEU2	In: 230 V ~ / 50 Hz (100 mA)	Out: 2 * 18.5 V ~ (500 mA)
Model MXUL2	In: 115 V ~ / 60 Hz (200 mA)	Out: 2 * 18.5 V ~ (500 mA)

PHYSICAL

Dimension (approx.; H * W * D)	14" (355.6 mm) * 11" (279.4 mm) * 2.5" / 4.65" (63.5 mm / 118.11 mm)
Net weight (without PSU)	approx. 3.3 kg

BEHRINGER is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or illustrated.

10. WARRANTY

§ 1 WARRANTY CARD/ONLINE REGISTRATION

To be protected by the extended warranty, the buyer must complete and return the enclosed warranty card within 14 days of the date of purchase to BEHRINGER Spezielle Studiotechnik GmbH, in accordance with the conditions stipulated in § 3. Failure to return the card in due time (date as per postmark) will void any extended warranty claims.

Based on the conditions herein, the buyer may also choose to use the online registration option via the Internet (www.behringer.com or www.behringer.de).

§ 2 WARRANTY

1. BEHRINGER (BEHRINGER Spezielle Studiotechnik GmbH including all BEHRINGER subsidiaries listed on the enclosed page, except BEHRINGER Japan) warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year from the original date of purchase, in accordance with the warranty regulations described below. If the product shows any defects within the specified warranty period that are not due to normal wear and tear and/or improper handling by the user, BEHRINGER shall, at its sole discretion, either repair or replace the product.

2. If the warranty claim proves to be justified, the product will be returned to the user freight prepaid.

3. Warranty claims other than those indicated above are expressly excluded.

§ 3 RETURN AUTHORIZATION NUMBER

1. To obtain warranty service, the buyer (or his authorized dealer) must call BEHRINGER (see enclosed list) during normal business hours **BEFORE** returning the product. All inquiries must be accompanied by a description of the problem. BEHRINGER will then issue a return authorization number.

2. Subsequently, the product must be returned in its original shipping carton, together with the return authorization number to the address indicated by BEHRINGER.

3. Shipments without freight prepaid will not be accepted.

§ 4 WARRANTY REGULATIONS

1. Warranty services will be furnished only if the product is accompanied by a copy of the original retail dealer's invoice. Any product deemed eligible for repair or replacement by BEHRINGER under the terms of this warranty will be repaired or replaced within 30 days of receipt of the product at BEHRINGER.

2. If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship. The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, BEHRINGER shall not be held responsible for any cost resulting from such a modification/adaptation.

3. Free inspections and maintenance/repair work are expressly excluded from this warranty, in particular, if caused by improper handling of the product by the user.

This also applies to defects caused by normal wear and tear, in particular, of faders, potentiometers, keys/buttons and similar parts.

4. Damages/defects caused by the following conditions are not covered by this warranty:

▲ misuse, neglect or failure to operate the unit in compliance with the instructions given in BEHRINGER user or service manuals.

▲ connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used.

▲ damages/defects caused by force majeure or any other condition that is beyond the control of BEHRINGER.

5. Any repair or opening of the unit carried out by unauthorized personnel (user included) will void the warranty.

6. If an inspection of the product by BEHRINGER shows that the defect in question is not covered by the warranty, the inspection costs are payable by the customer.

7. Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. BEHRINGER will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 6 weeks after notification, BEHRINGER will return the unit C.O.D. with a separate invoice for freight and packing. Such costs will also be invoiced separately when the buyer has sent in a written repair order.

§ 5 WARRANTY TRANSFERABILITY

This warranty is extended exclusively to the original buyer (customer of retail dealer) and is not transferable to anyone who may subsequently purchase this product. No other person (retail dealer, etc.) shall be entitled to give any warranty promise on behalf of BEHRINGER.

§ 6 CLAIM FOR DAMAGES

Failure of BEHRINGER to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of BEHRINGER exceed the invoiced value of the product.

§ 7 OTHER WARRANTY RIGHTS AND NATIONAL LAW

1. This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.

2. The warranty regulations mentioned herein are applicable unless they constitute an infringement of national warranty law.

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BEHRINGER® PRO MIXER DX 500

BEHRINGER
 MODEL DX 500
 PROFESSIONAL DJ MIXING CONSOLE

POWER SOURCE: 2*19VAC 30W

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 BEHRINGER ENGINEERING GERMANY.
 ASSEMBLED IN CHINA UNDER THE
 MANAGEMENT SYSTEM ISO9000.

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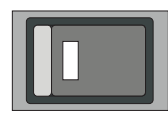
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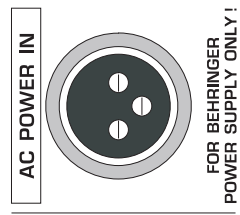
CAUTION
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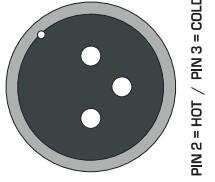


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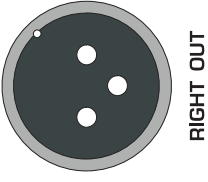


[33]

LEFT OUT



PIN 2 = HOT / PIN 3 = COLD



RIGHT OUT

[34]

MAIN	OUT	L	R	[35]
ZONE	OUT	L	R	[36]
EFFECT IN / OUT	SEND	L	R	[40]
	RETURN	L	R	[41]

LINE	PHONO	LINE	PHONO	[37]
1	L	R	L	R
2	L	R	L	R
3	L	R	L	R

[37]

[38]

[39]

[40]

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DX500 FRONT PANEL

BEHRINGER®
ULTRA-LOW NOISE DESIGN

PRO MIXER DX 500
PROFESSIONAL DJ MIXER WITH 12 SECOND DIGITAL SAMPLER

