

# User Manual



## ULTRA-DI PRO DI800

Professional Mains/Phantom Powered 8-Channel DI-Box



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## Thank you

Thank you for showing confidence in BEHRINGER products by purchasing the DI800.

## EN Important Safety Instructions



Terminals marked with this symbol carry electrical current of sufficient magnitude to constitute risk of electric shock.

Use only high-quality professional speaker cables with ¼" TS or twist-locking plugs pre-installed. All other installation or modification should be performed only by qualified personnel.



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. Please read the manual.



### Caution

To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside. Refer servicing to qualified personnel.



### Caution

To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing liquids and no objects filled with liquids, such as vases, shall be placed on the apparatus.



### Caution

These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operation instructions. Repairs have to be performed by qualified service personnel.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Use only attachments/accessories specified by the manufacturer.



12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid

injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. The apparatus shall be connected to a MAINS socket outlet with a protective earthing connection.

16. Where the MAINS plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.



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For the applicable warranty terms and conditions and additional information regarding MUSIC Group's Limited Warranty, please see complete details online at [www.music-group.com/warranty](http://www.music-group.com/warranty).

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# 1. Introduction

Be it on-stage or in the studio, musicians often look for ways to connect certain signal sources directly to the mixing console. Even though this approach has obvious advantages, there are still some technical hurdles obstructing its implementation. For example, keyboards seldom feature balanced outputs, and guitars can not be directly connected to mixing consoles because of the high impedance of guitar signals.

A DI-box lets you directly tap into a high-impedance, unbalanced signal—for example, the signal between a guitar and a guitar amp. From there on, you can feed the signal directly to a mixing console.

There are active and passive DI-boxes. A passive DI-box is more affordable, but its performance is highly dependent on the impedance of the equipment to which it is connected. When the impedance on the mixing console's end changes, so does the impedance at the DI-box's input. A passive DI-box only functions correctly when the impedance of the connected equipment is exactly specified (high at the input, low at the output).

On the other hand, active DI-boxes, such as the DI800, are not bound by these limitations, since the signal located at the input is "buffered" by an amplifier. The input impedance of the DI800 is extremely high. It does not influence the sound source and has absolutely no effect on the signal flow through the DI-box. The output impedance is balanced and is very low, and the signal is far less susceptible to picking up noise. The ULTRA-DI PRO always transmits signals optimally, independent of the impedance of the connected equipment.

In addition to being powered by a mains connection, the ULTRA-DI PRO DI800 can also run on phantom power provided by your mixing console.

- ◆ **To avoid damaging your loudspeakers, always first connect the DI-box and only then open up the respective channel strip.**

## 1.1 Before you get started

### 1.1.1 Shipment

Your ULTRA-DI PRO was carefully packed at the assembly plant to assure secure transport. Should the condition of the cardboard box suggest that damage may have taken place, please inspect the unit immediately and look for physical indications of damage.

- ◆ **Damaged units should NEVER be sent directly to us. Please inform the dealer from whom you acquired the unit immediately as well as the transportation company from which you took delivery of the unit. Otherwise, all claims for replacement/repair may be rendered invalid.**
- ◆ **To assure optimal protection of your ULTRA-DI PRO during use or transport, we recommend utilizing a carrying case.**
- ◆ **Please always use the original packaging to avoid damage due to storage or shipping.**
- ◆ **Never let unsupervised children play with the ULTRA-DI PRO or with its packaging.**
- ◆ **Please dispose of all packaging materials in an environmentally-friendly fashion.**

### 1.1.2 Initial operation

Please make sure the unit is provided with sufficient ventilation, and never place the ULTRA-DI PRO on top of an amplifier or in the vicinity of a heater to avoid the risk of overheating.

- ◆ **Before plugging the unit into a power socket, please make sure you have selected the correct voltage:**

The fuse compartment near the power plug socket contains three triangular markings. Two of these triangles are opposite one another. The voltage indicated adjacent to these markings is the voltage to which your unit has been set up, and can be altered by rotating the fuse compartment by 180°. **ATTENTION: This does not apply to export models that were for example manufactured only for use with 120 V!**

- ◆ **If you alter the unit's voltage, you must change the fuse accordingly. The correct value of the fuse needed can be found in the chapter "Specifications".**
- ◆ **Faulty fuses must be replaced with fuses of appropriate rating without exception! The correct value of the fuses needed can be found in the chapter "Specifications".**

Power is delivered via the cable enclosed with the unit. All required safety precautions have been adhered to.

- ◆ **Please make sure that the unit is grounded at all times. For your own protection, you should never tamper with the grounding of the cable or the unit itself. The unit shall always be connected to a mains socket outlet with a protective earthing connection.**

### 1.1.3 Warranty

Please take a few minutes and send us the completely filled out warranty card within 14 days of the date of purchase. You may also register online at [behringer.com](http://behringer.com). The serial number needed for the registration is located at the top of the unit. Failure to register your product may void future warranty claims.

### 1.1.4 Online registration

Please register your new BEHRINGER equipment right after your purchase by visiting <http://behringer.com> and read the terms and conditions of our warranty carefully.

Should your BEHRINGER product malfunction, it is our intention to have it repaired as quickly as possible. To arrange for warranty service, please contact the BEHRINGER retailer from whom the equipment was purchased. Should your BEHRINGER dealer not be located in your vicinity, you may directly contact one of our subsidiaries. Corresponding contact information is included in the original equipment packaging (Global Contact Information/European Contact Information). Should your country not be listed, please contact the distributor nearest you. A list of distributors can be found in the support area of our website (<http://behringer.com>).

Registering your purchase and equipment with us helps us process your repair claims more quickly and efficiently.

Thank you for your cooperation!

## 2. Control Elements

The BEHRINGER ULTRA-DI PRO features eight identically built channels. The control elements described here refer therefore to all channels.

- 1 The **INPUT** connector is used for connecting unbalanced as well as balanced signal sources.
- 2 Because both **INPUT** and **LINK** connectors are wired in parallel, the **LINK** TRS connector can be used both as an input and as a direct unbalanced output of the **INPUT** signal. For the latter, you can for example connect **LINK** with the input of a monitor amplifier.
- 3 The unbalanced input signal can be tapped into at the **UNBAL OUT TRS** connector – after passing through the amplification circuitry (see 4 and 6). Essentially, the signal is identical to the signal located at the XLR output in the back; the only difference is that it is unbalanced and has therefore no Ground Lift functionality (see 5).

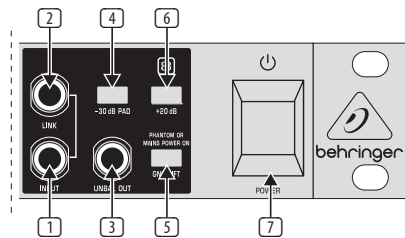


Fig. 2.1: Front panel control elements

- 4 The **-30 dB** attenuation switch increases the operating range of the DI800 considerably, from low signal levels of a high-impedance mic or a guitar, all the way to speaker connectors of a guitar amplifier.
  - ◆ Use the **-30 dB** switch only when the DI800 starts distorting (and not the mic preamp). When this is not the case, avoid using this function, since the lowest amount of attenuation is desirable in order to obtain the lowest signal-to-noise ratio possible.
- 5 Using the **GND LIFT** switch, you can fully separate input and output grounding. Depending on how the equipment to which your DI800 is connected is grounded, using the **GND LIFT** switch lets you lower hum noise or ground loops. When the **GND LIFT** switch is depressed, the ground connection is interrupted (the LED is lit red). When the switch is in the **PHANTOM OR MAINS POWER ON** setting, the LED is lit green (when the **GND LIFT** switch is not pressed).
- 6 The **+20 dB** switch increases the input signal level by 20 dB.

- 7 Use the **POWER** switch to power up your DI800. The **POWER** switch should always be in the “Off” position when you are about to connect your unit to the mains.
  - ◆ To disconnect the unit from the mains, pull out the mains cord plug. When installing the product, ensure that the plug is easily accessible. If mounting in a rack, ensure that the mains can be easily disconnected by a plug or by an all-pole disconnect switch on or near the rack.

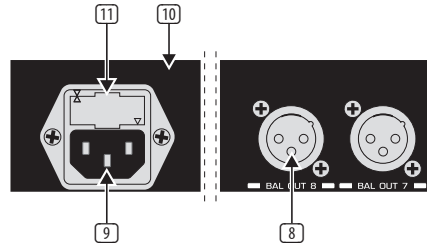


Fig. 2.2: Rear panel connectors

- 8 The **BAL OUT** connectors (1 - 8) are the balanced mic-level outputs of the channels 1 to 8. Use a high-quality balanced microphone cable to establish connection.
- 9 The mains connection is achieved via the standard IEC connector. A matching power cord is included.
- 10 **Serial NUMBER.** The serial number is located on the top of the unit. Please take a few minutes and send to us a completely filled out warranty card within 14 days of the original date of purchase. Otherwise, warranty claims may be rendered invalid. Or fill out the warranty information online at [behringer.com](http://behringer.com).
- 11 **FUSE COMPARTMENT/VOLTAGE SELECTION:** Before plugging the unit into a power socket, please make sure you have selected the correct voltage. Faulty fuses must be replaced with fuses of appropriate rating without exception. Some units feature a fuse compartment that can be operated in two different positions, allowing alternating between 230 V and 120 V. Attention: when using the unit outside of Europe (running on 120 V), you have to use a fuse with a higher rating (see chapter 5 “Specifications”).

## 3. Applications

### 3.1 Connecting a guitar/bass signal

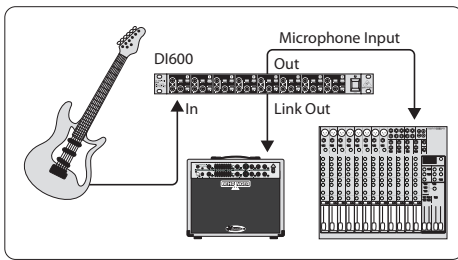


Fig. 3.1: Guitar → DI-box → guitar amp/mixer

This illustration shows the standard application of a DI-box. The signal feeding the amplifier remains unchanged; it is simply taken and routed into the amp. The low-impedance balanced signal is forwarded to the mic input of the mixing console. This application has its advantages particularly with bass guitars, because very few microphones can linearly transmit bass frequencies with high signal levels. If you are using effects, insert the DI800 after the effects device, so that you can monitor the effects via the PA system or the recording as well.

### 3.2 Converting output signals of a keyboard, DJ mixer, etc.

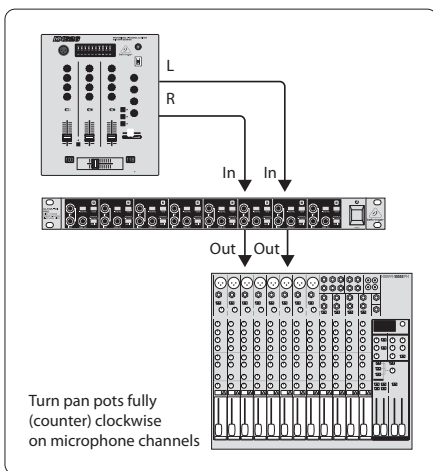


Fig. 3.2: DJ mixer → DI-box → mixer

This configuration lends itself to use with a keyboard, DJ mixer or other mono/stereo signal sources with line level, particularly when using long cables (e.g. connecting to a FOH mixer). The signal can be looped through to another amplifier via the link output. Thus, you get a monitor signal that is independent from the actual FOH signal (useful for keyboarders, DJs etc.).

### 3.3 Converting a microphone signal

Average-quality microphones often feature unbalanced, high-impedance outputs. The DI800 lets you wire such mics to the mixing console using long cables without running the danger of inducing hum or interference noise. To this end, the microphone has to be connected to the input of the DI-box, and the DI-box's output needs to be connected to the mic input on the mixing console.

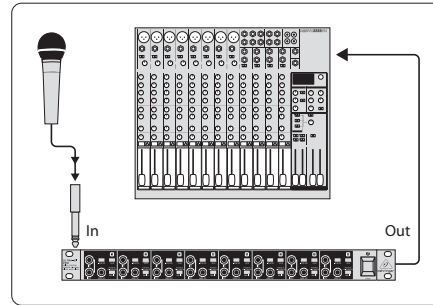


Fig. 3.3: Microphone connection

### 3.4 Taking a signal from a speaker output

Sometimes, you want to take a signal directly from a speaker output, even though just one speaker output is available. By using the -30 dB switch on the DI800, you can connect your mixing console to an amp output (up to 3,000 Watts into 4 Ohms), without worrying that the DI800 will be damaged due to overload! If you are using a tube amp, you should connect a speaker or a similar load resistance to the LINK output.

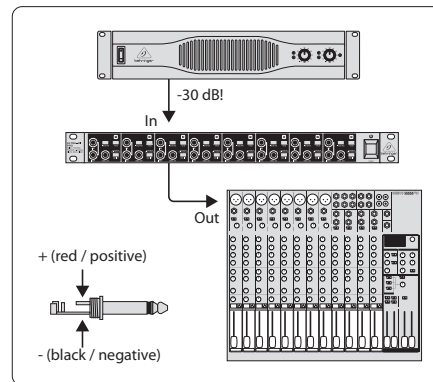


Fig. 3.4: Connection to a power amp output

- ◆ Before connecting to a loudspeaker connector, please make sure that the GROUND LIFT switch is in the ON position (no ground connection). This prevents accidental shorting of the amp output. Besides, the tip of the input connector should be connected to the speaker connector marked with red. The metal casing of the DI800 should in no case have physical contact to other equipment.

## 4. Audio Connections

- ◆ Please make sure that your DI800 is installed and handled only by people with enough technical expertise. Assure that those operating the unit during and after the installation are sufficiently grounded. Otherwise, electrostatic charge may alter the performance of your equipment or damage it permanently.

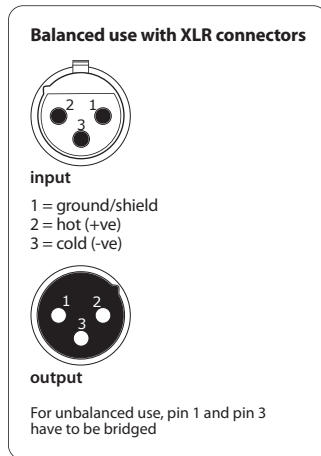


Fig. 4.1: XLR connections

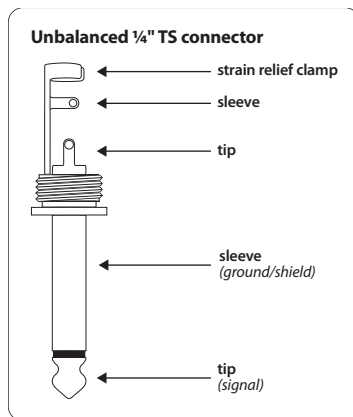


Fig. 4.2: ½" TS connector

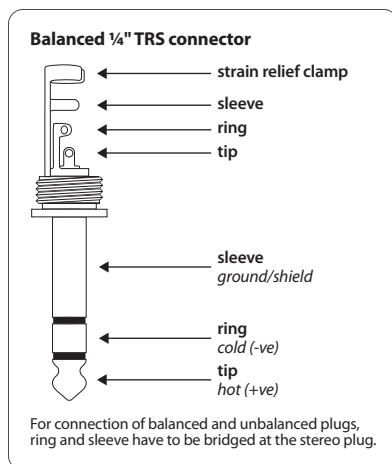


Fig. 4.3: ¼" TRS connector

## 5. Specifications

EN

### Audio Inputs

Connections	¼" TS connector, unbalanced
Type	DC-decoupled
Input impedance	1 MΩ
Max. input level	+18 dBu/+48 dBu (-30 dBu pad depressed)

### Audio Outputs

Connections	XLR, balanced ¼" TS connector, unbalanced
Type	electrically balanced output stage
Impedance	680 Ω, balanced
Max. output level	+23 dBu, balanced +16 dBu, unbalanced

### System Specifications

Frequency range	20 Hz to 120 kHz (± 3 dB)
Signal-to-noise ratio (SNR)	-104 dBu

### Power Supply

#### Voltage

USA/Canada	120 V~, 60 Hz
Europe/U.K./Australia	230 V~, 50 Hz
Japan	100 V~, 50 - 60 Hz
General export model	120/230 V~, 50 - 60 Hz

Power consumption 10 W

Fuse 100 - 120 V~: T 200 mA H 250 V  
200 - 240 V~: T 125 mA H 250 V

Mains connection Standard IEC connector

### Dimensions/Weight

Dimensions (H x W x D) approx. 8 ½ x 1 ¾ x 19"  
approx. 215 x 44.5 x 482.6 mm

Weight approx. 5.3 lbs / 2.4 kg

Shipping weight approx. 7.1 lbs / 3.2 kg

BEHRINGER continuously strives to assure the highest quality standards possible. Required modifications may be implemented without prior notice. Specifications and the appearance of the unit may deviate from the above values and/or illustrations.



We Hear You