



MDB Series

<http://mackie.com/products/mdb-series>



What models are featured in the MDB series?

The MDB series consists of four different direct boxes:

- **MDB-1P** Passive Direct Box
- **MDB-2P** Passive Stereo Direct Box
- **MDB-1A** Active Direct Box
- **MDB-USB** Stereo Direct Box

What is a direct box?

Direct boxes, also known as “DI” boxes (which stands for “direct injection”), are devices used for impedance matching and signal-balancing. Simply put, they convert unbalanced and/or high impedance instrument signals into a mic or line level signal that can then be plugged into a mixing console’s input.

Why use a direct box?

Good question. One of the biggest reasons for using a direct (DI) box is simply because it will convert your unbalanced signals from guitars, basses, keyboards, etc. to a balanced signal. Unbalanced cables send a signal along a single connection, with a ground wrapped around that single connection also serving as the negative part of the audio signal and are susceptible to noise and RF/EMF interference, especially when running at distances over ten feet.

A balanced cable, by contrast, has two signal wires as well as a separate ground wire. Just like the unbalanced cable, the ground wire wraps around the signal wires serving as a shield against interference. So, in short, DI boxes help reduce noise between your instruments and music gear to your mixer or PA system. DI boxes also bring that low instrument-level signal, such as a guitar or bass, up to a balanced line level signal that your mixer or audio interface need to see.



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What is the difference between a passive and active direct box?

The biggest difference between active and passive DI boxes is that an active DI box requires power, either from a battery or phantom power. A passive direct box does not need any type of power source. An active direct box also has a built-in buffer or unity gain amplifier that will provide a stronger signal than a passive box will. This is because passive devices contain no amplification circuitry.

Some advantages to passive boxes include no noise that is typically added from active circuitry, the aforementioned no power needed, and since these passive boxes are basically transformers to impedance match and balance, you can sometimes get coloration to your sound.

The active direct box has a preamplifier in it to boost your signal slightly and add a higher input impedance. This can be beneficial if you are using an instrument with an already low output like a vintage Jazz Bass as it can help boost the output.

The MDB-1P and MDB-2P are passive direct boxes. The MDB-1A and MDB-USB are active direct boxes.

How do I power the direct boxes?

MDB-1P & MDB-2P are passive boxes and do not require power.

MDB-1A

Requires 48v Phantom Power that is supplied from a mixer or audio interface.

MDB-USB

This direct box is bus-powered, this is power from the USB of a computer and not the horse-power of a school bus.



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What is phantom power?

A system of providing electrical power for condenser microphones (and some electronic pickup devices) from the microphone input jack. The system is called phantom because the power is carried on standard microphone audio wiring in a way that is “invisible” to ordinary dynamic microphones. Mackie mixers use standard +48 volt DC power, switchable on or off. Most quality condenser microphones are designed to use +48 VDC phantom power. Check the manufacturer’s recommendations.

Generally, phantom power is safe to use with non-condenser microphones as well, especially dynamic microphones. However, unbalanced microphones, some electronic equipment (such as some wireless microphone receivers) and some ribbon microphones can short out the phantom power and be severely damaged. Check the manufacturer’s recommendations and remember...be careful!

What would I use the MDB-USB for?

Glad you asked. The MDB-USB works great for connecting a computer to your mixer or PA system directly. Typically, when you are running a computer with your sound system you have to use your 1/8-inch to a 1/4-inch cable from your computer out to your mixer. This seems unreliable and less than ideal if you are counting on this connection for your whole gig. With the MDB-USB you can run a USB cable from the computer to the direct box and take the balanced XLR outputs to a couple of inputs on your mixer. This is a much more secure connection between the computer and DI box while also giving you balanced audio out to your mixer or PA system.

Will the MDB-USB function as a recording interface?

Unfortunately, the MDB-USB only has a USB input (to play audio from a computer) and no analog inputs so this unit will not function as a recording interface.

Which MDB series model would you recommend for my keyboard?

If you have a stereo left and right output from your keyboard (most keyboards do), we would recommend using our MDB-2P as it has stereo left/right inputs and outputs. Also, this unit is a passive DI box and you typically want to use a passive direct box with a keyboard because most keyboards have such a high output. This high output will overload most active direct boxes and the passive transformer is able to better handle the extreme dynamics of a keyboard.





What kind of inputs/outputs are used on these direct boxes?

MDB-1P

- Single unbalanced 1/4-inch line-level input meant for output from an instrument (active or passive).
- Single unbalanced 1/4-inch Thru output that can be connected to the input of an instrument amplifier or instrument-level effects device (such as an FX device chain, processors, or tuner). This output is unaffected by the direct box's circuitry.
- Single XLR output provides a balanced line-level signal to connect to the inputs of a mixer or audio interface.

MDB-2P

- Two unbalanced 1/4-inch line-level inputs meant for output from an instrument (active or passive). Perfect for musicians with stereo instruments like keyboards or an electronic drum kit.
- Two unbalanced 1/4-inch Thru outputs that can be connected to the input of an instrument amplifier or instrument-level effects device (such as an FX device chain, processors, or tuner). This output is unaffected by the direct box's circuitry.
- Two XLR outputs provide a balanced line-level signal to connect to the inputs of a mixer or audio interface.

MDB-1A

- Single unbalanced 1/4-inch line-level input meant for output from an instrument (active or passive).
- Single unbalanced 1/4-inch Thru output that can be connected to the input of an instrument amplifier or instrument-level effects device (such as an FX device chain, processors, or tuner). This output is unaffected by the direct box's circuitry.
- Single XLR output provides a balanced line-level signal to connect to the inputs of a mixer or audio interface.

MDB-USB

- Single USB input allows you to stream audio from a computer and route it to the outputs and headphones.
- Single 1/8-inch TRS balanced connector sends this output to a set of stereo headphones.
- Two XLR outputs provide a balanced line-level signal to connect to the inputs of a mixer or audio interface.





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Can I plug a 1/4-inch TRS connector into the unbalanced inputs on the MDB series?

Yes. The DI boxes will take that signal and treat it like it was an unbalanced signal by taking the positive (hot) signal only. You may hear a slight decrease in input level but you can easily make up for that by bringing up the output level of your audio source.

Am I able to run any of these MDB series direct boxes in mono?

Yes. All models in the MDB series can be run in mono.

MDB-1P & MDB-1A

Both of these direct boxes have just a single input and output jack that are mono.

MDB-2P

Has left and right input jacks for a stereo input source but, you can connect to just one side and they will function as a mono input.

MDB-USB

This model actually has a Mono On/Off switch. When the switch is in the OFF position (up), the left and right sides are in stereo. When that switch is in the ON position (down), the stereo signal is summed to mono.

What is the “Merge” switch used for on the MDB-1A?

The “Merge” switch allows you to use the ‘Thru’ output as another input. When the ‘Merge’ switch is on, it mono sums both the input and the ‘Thru’ to a single mono output. This is useful if you want to sum a stereo source like a keyboard or media player down to a single mono output due to limited channels on your mixer.

What are the frequency responses of the MDB series?

MDB-1P & MDB-2P

20Hz – 20kHz +/- 0.2dB

MDB-1A & MDB-USB

20Hz – 20kHz +/- 0.5dB



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What are the input/output impedances of the MDB series?

MDB-1P

- Input: 140k ohms
- Output: 400 ohms, unbalanced



MDB-2P

- Input: 140k ohms
- Output: 400 ohms, unbalanced



MDB-1A

- Input: 330k ohms
- Output: 150 ohms



MDB-USB

- Output: 600 ohms



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