

# TDA-1 MONO & TDA-2 DUAL ACTIVE DIRECT BOXES



**USER MANUAL**

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## Introduction

Congratulations on your purchase of a TELEFUNKEN Elektroakustik Active FET Direct Box. This is a brief overview of some information we thought you may want to know about this product.

Below is a list of all the contents included in this box:

- Direct Box (of course)
- Cloth Carrying Pouch (store your DI in here when not in use, or keep something else in it)
- User Manual (which you're reading)
- 2x Rubber Strips (to provide a slip-resistant grip on the bottom of the direct box)
- TELEFUNKEN Sticker (stick it somewhere cool!)

## Product Description

The TELEFUNKEN TDA-1 (mono unit) and TDA-2 (dual unit) are active FET direct box designs that utilize top quality components in a modern take on classic circuitry to give you a full, rich character that both complements and retains the natural tone and feel of your instrument. The TDA circuit employs discrete Class-A FET circuitry coupled with a high quality transformer that provides the perfect balance between clean, high headroom performance and warm, saturated tone with vibe.

The heart of the design is a custom-wound output transformer by OEP/Carnhill, made in the UK. The circuit board features gold plated traces and is entirely hand-assembled with through-hole components, providing more secure and reliable connections than typical surface mount circuitry. The frequency response of the circuit is  $\pm 1\text{dB}$  from 20 Hz to 50 kHz, with extremely low distortion and self-noise. Each individual unit is manually tuned by hand for the lowest distortion figure possible. High input impedance prevents the loading down of passive pickups. This careful attention to detail and high quality component choices results in a direct box with a harmonically rich low end and a detailed, open high-end clarity.

The circuit is housed in an extremely durable extruded aluminum enclosure with recessed switches and connectors. This rugged construction is virtually indestructible, able to easily withstand the wear and tear of gigging. Each channel features two heavy duty metal toggle switches to engage a -15 dB pad and ground lift. The circuit is powered from standard +48V phantom power with an LED indicating when it is powered. The TDA-2 unit features two independent DI channels with separate controls, giving you the ability to run two instruments through one footprint on stage or in the studio.

While some direct boxes focus on providing sterile, ultra-clean gain, they often leave the instrument devoid of any soul or character. Conversely, some DI's artificially hype too much low end and overemphasize harmonic distortion, resulting in a tubby and undefined output. The TELEFUNKEN active DI avoids these common design pitfalls and delivers a new standard in reliability and performance for direct boxes.

### **Applications**

Direct boxes are necessary to match instrument level output impedances to low impedance mic level. Prime examples of application are recording bass guitar direct through an interface, running a synthesizer into a recording console, or plugging an acoustic guitar into a PA system. The active DI will handle any instrument you connect, but will excel on sources such as passive pickups from electric bass or acoustic guitar or contact piezo pickups from upright bass or violin.

The active DI is ideal for older synths and keyboards that don't have quite as high of an output as their more modern counterparts. Of course, with the added -15 dB PAD switch engaged, it will certainly handle even the highest output keyboards and synths, plus active bass and acoustic guitars cleanly.

In use, active DI boxes are characterized as being cleaner with less distortion as compared to their passive counterparts. However, because the TDA-1 and TDA-2 are designed around a large format transformer with a nickel-iron core, you can still achieve that desirable saturation, just with a more open sounding response.

### **WARNING**

This direct box is designed for INSTRUMENT LEVEL signal only. DO NOT plug an amplifier output into it. Doing so will damage the unit.



## Input Panel

**INPUT:** Plug your instrument into the unbalanced female 1/4" INPUT jack using an unbalanced 1/4" cable.

**THRU:** Connect the THRU to your instrument amplifier input. INPUT and THRU jacks are wired in parallel, meaning they have the exact same connections. Therefore, you can plug your instrument and amplifier into either jack on the input panel and it will work the same.

**-15dB:** By engaging this switch in the UP position, the input signal is attenuated -15 dB. This is provided to pad any extremely high output sources and still output a clean signal. In the DOWN position, there is no pad in the signal path.

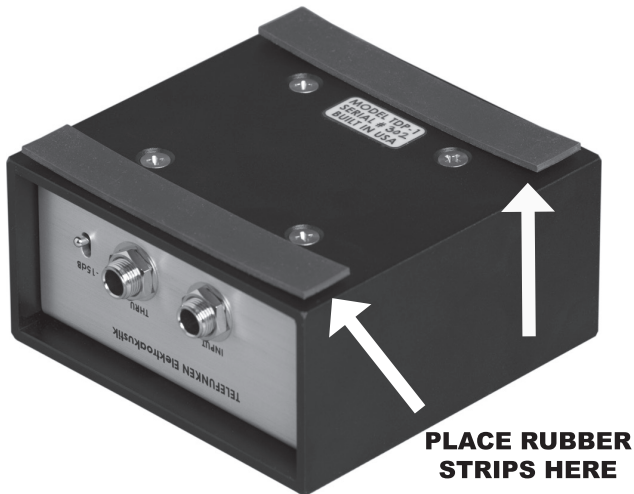


## Output Panel

**+48V:** The TDA direct boxes are active FET circuits, therefore require standard +48V DC phantom power. This is provided by nearly all modern consoles and pre-amplifiers. It is suggested to make all connections to the DI before activating phantom power. When the box is receiving power, the LED will illuminate blue.

**OUTPUT:** Connect an XLR cable from the OUTPUT connector to the input of your device (mixer, console, interface, etc.). This is a balanced male XLR with standard pin 2 hot wiring.

**GROUND LIFT:** In the UP position, labeled 'LIFT', this switch lifts the input signal ground. Engage this switch if you encounter a ground hum or low level buzz. In the DOWN position, labeled GND, there is no ground lift in the signal path.



### Rubber Strip Application

Included in the box are 2 adhesive-backed rubber strips to apply to the bottom of the DI. This provides increased grip and slip resistance to keep the DI from sliding around on stage or any surface it is placed on. We recommend applying the strips so they are parallel to the chassis opening and model sticker. Remove the backing to the adhesive and position it so the strip does not cover any screws. See image above.

## **Frequently Asked Questions**

### **What is a direct box used for?**

A direct box is a device for matching high impedance instrument outputs to low impedance microphone inputs and is commonly referred to as a DI, which stands for “direct insert” or “direct inject.”

### **When should I use an active direct box?**

A good rule of thumb is selecting a direct box that is opposite your pickup type. If you have a bass with passive pickups, the TDA-1 active DI is suggested. The same goes for acoustic guitar and lower output synths and keyboards.

### **Can I use the TDA-2 dual DI with two instruments?**

Yes, the two signal paths are completely independent. This means the TDA-2 can be used with stereo instruments or two completely separate sound sources without the worry of crosstalk. You can also use only one side of the unit for a single mono source without needing to use the other channel. **Note:** If using the TDA-2 with a stereo device, make sure both channel switches are in the same position for a balanced output. For example, if using the -15dB pad on a stereo keyboard, put both pad switches in the UP position to evenly attenuate the left and right signals.

### **Does the TELEFUNKEN direct box add gain to my instrument?**

No, the TDA active DI boxes are unity gain devices. As such, they do not add any additional gain.

### **Does my direct box need power?**

The TDA active DI boxes operate off of standard +48V DC phantom power, indicated by a blue LED on the output panel of the direct box. The TDA-2 has two independent LEDs that show whether or not each channel is receiving phantom power. **Note:** When the active DI is not powered but has the output connected, an extremely low level signal will pass through the circuit.

### **My TDA-1 / TDA-2 is not working, is it broken? Do I have to put a battery in it?**

The TDA direct boxes require phantom power (+48V DC) sent to it from your recording interface or console. When the unit is receiving power, you will see a blue LED. Neither unit has an internal battery compartment.

### **Can I use the active DI for re-amping?**

No, this is not a design feature. It could be possible to cause permanent damage to the unit.

## TDA-1 / TDA-2 TECHNICAL SPECIFICATIONS

Type	Active Direct Box
Transformer	Custom Wound OEP/Carnhill Transformer
Frequency Response	20 Hz- 50 kHz, $\pm 1$ dB
Self Noise	-116 dBV (unweighted)
Input Impedance	> 30 k $\Omega$
Output Impedance	< 250 $\Omega$
Power Requirements	+48V DC Phantom Power
Current Draw	3.8 mA
Weight	459 g (1.06 lb)
Dimensions	100mm L x 100mm W x 50mm H
Maximum Input Level (For 1% THD)	+3.5 dBV (no pad); +18 dBV (with pad)
Input Connections	1/4" Jack
Output Connections	XLR Output, 1/4" Thru

### Warranty

TELEFUNKEN Elektroakustik direct boxes come with a 3-year warranty. What does this mean? In the off chance anything goes wrong during normal use and operation, we will fix it. If you have a question or issue, please email [repairs@t-funk.com](mailto:repairs@t-funk.com).

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