

Direct Box
User Manual

Preface

The purpose of this section is to ensure that the user is able to use the product correctly through this manual in order to avoid danger in operation or property damage. Before using this product, please read the product manual carefully and keep it for future reference.

Outlined

This manual applies to Direct Box.

This manual describes the functions and use of the various functional modules of the Direct Box, and guides you through the installation and commissioning of the Direct Box.

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
 Note	Provides additional information to emphasize or supplement important points of the main text.
 Caution	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
 Danger	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.

Safety Instructions

Danger

To ensure reliable use of the equipment and the safety of personnel, please observe the following during installation, use and maintenance:

- During the installation and use of the equipment, all electrical safety regulations of the country and the region of use must be strictly observed.
- Keep the working environment well ventilated so that the heat generated by the equipment during operation can be discharged in time to avoid damage to the equipment due to excessive temperature.
- Always unplug the unit's power adapter from the AC power outlet before: A. Removing or reinstalling any part of the equipment; B. Disconnecting or reconnecting any electrical plug or connection of the equipment. Do not operate with electricity.

- There are AC high-voltage parts in the equipment, non-professionals should not disassemble them without permission to avoid the risk of electric shock. Do not repair the equipment privately to avoid aggravating the damage.
- Do not spill any corrosive chemicals or liquids on or near the equipment.
- If the unit emits smoke, odour or noises, turn off the power immediately and unplug the power cord, and contact your dealer or service centre.
- If the appliance is not working properly, contact the shop where you purchased the appliance or the nearest service centre and do not disassemble or modify the appliance in any way. (We cannot be held responsible for problems caused by unapproved modifications or repairs).

**Caution**

- Do not drop objects on the equipment or vibrate the equipment vigorously, and keep the equipment away from locations with magnetic field interference. Avoid installing the equipment in a place where the surface vibrates or is susceptible to shock (neglecting this may damage the equipment).
- Do not use the equipment in high temperature, low temperature or high humidity environments. Refer to the equipment's data sheet for specific temperature and humidity requirements.
- Use the unit indoors, not in an exposed installation where it may be exposed to rain or extreme humidity.
- When the equipment is not used for a long period of time or in a humid and dewy environment, the main power supply of the equipment should be switched off.
- When cleaning the equipment, please use a sufficiently soft dry cloth or other alternatives to wipe the internal and external surfaces, do not use alkaline detergent to wash, and avoid hard objects to scratch the equipment.
- Please keep all the original packaging materials of the equipment properly, so that in case of problems, use the packaging materials to pack the equipment and send it to the agent or return it to the manufacturer for processing. We will not be responsible for any accidental damage in transit not caused by the original packaging materials.

**Note**

- Requirements for the quality of installation and commissioning personnel
Qualifications or experience in the installation and commissioning of audio and video systems and qualifications to perform related work, in addition to the knowledge and operational skills listed below.
 - Basic knowledge and installation skills of audio and video systems and components.
 - Basic knowledge and skills in low voltage cabling and wiring of low voltage electronics.
 - Basic audio and networking knowledge and skills and the ability to read and understand the contents of this manual.

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Chapter 1 Product Introduction

1.1 Introduction

This is a professional single-channel passive impedance converter (Direct Box) designed for live performances, recording studios, and broadcast applications. The unit employs high-quality audio transformers to convert high-impedance unbalanced inputs to low-impedance balanced outputs, supporting long-distance cable transmission (>100 meters) without distortion while effectively eliminating ground loop noise, hum, and EMI/RFI interference. Its passive design requires no external power supply, offering plug-and-play functionality for connecting high-impedance sources like guitars, basses, and keyboards to professional mixing consoles or PA systems. The unit delivers an exceptional balance of audio fidelity and durability, ensuring natural tonal reproduction and reliable performance.

1.2 Product Features

- ✧ Single-channel passive design: Operates passively without batteries or power supply, supporting high-impedance input to balanced output conversion;
- ✧ Premium transformer: Built-in top-tier 10:1 audio transformer delivers flat frequency response and ultra-low distortion for high-fidelity signal transmission;
- ✧ Noise Isolation: >60 dB ground loop suppression with built-in ground lift switch eliminates 50/60 Hz hum and RF interference;
- ✧ Thru output: 1/4" parallel Thru jack facilitates chaining amplifiers or effects processors;
- ✧ Flexible Input: Compatible with 1/4" TS high-impedance plugs for instrument-level sources;
- ✧ Rugged Construction: Heavy-duty steel chassis with internal shielding, shock-resistant and durable for touring and stage environments;
- ✧ Impedance Matching: 133:1 impedance ratio for optimized level conversion (-20 dB shift), preventing signal overload;
- ✧ Compact Portability: Lightweight design for easy transport and integration into any audio system.

Chapter 2 Interface Description



- ① L and R: XLR output connectors;
- ② GND: Ground lift switch to eliminate 50/60 Hz hum and RF interference;
- ③ IN: 1/4" TS high-impedance jack input for instrument-level sources;
- ④ PAD: Gain adjustment knob for regulating input channel gain;
- ⑤ THRU: 1/4" parallel Thru jack for daisy-chaining amplifiers or effects processors.

Chapter 3 Application Scenarios

- Live Performance: Connects mono instruments like guitars or basses to PA systems, eliminates noise, and supports long cable runs.
- Recording Studio: Directly record high-impedance sources, delivering pure balanced signals while avoiding ground loop interference.
- Broadcast & AV: Integrate consumer devices into professional audio chains, matching impedance and levels.
- Touring & Live Events: Rugged construction withstands transportation, ideal for festivals, theaters, and mobile applications.

Chapter 4 Specification

Category	Parameter Item	Parameter Description
Audio	Number of Channels	1 (Mono)

Performance	Frequency Response	20 Hz~20 kHz (± 1 dB)
	Total Harmonic Distortion (THD)	< 0.01% (1 kHz, 0 dBu input)
	Signal-to-Noise Ratio (SNR)	> 100 dB (A-weighted)
	Maximum Input Level	+20 dBu
	Maximum Output Level	0 dBu (balanced output)
	Impedance Ratio (Input/Output)	133:1 (high-impedance input to low-impedance output)
	Phase Shift	< 5° (full frequency range)
	Dynamic Range	> 120 dB
Isolation and Noise Suppression	Transformer Type	Jensen JT-DB-E Class 10:1 audio transformer (nickel core, Faraday shielded)
	Isolation Voltage	> 1 kV (input/output)
	Ground Loop Noise Suppression	> 60 dB (50/60 Hz); > 40 dB EMI/RFI
	Maximum Transmission Distance	> 100 m (balanced XLR cable, no noticeable attenuation)
	Ground Lift	Independent switch to eliminate ground loop hum
Interfaces and Connections	Input Connectors	1 x 1/4" TS female jack (high impedance, unbalanced)
	Output Connectors	1 x XLR male connector (balanced, low impedance, Pin 2 hot)
	Thru Output	1 x 1/4" TS female jack (parallel output)
	Compatible Sources	For high-impedance devices like guitars, basses, keyboards,

		synthesizers, etc.
Physical and Environmental	Dimensions (L x W x H)	70 mm x 36 mm x 100 mm
	Weight	0.45 kg
	Enclosure Material	Heavy-duty 16-gauge steel enclosure, powder-coated
	Operating Temperature	-10°C~60°C
	Storage Temperature	-40°C~85°C
	Humidity	0%~95% (non-condensing)
Power and Safety	Power Requirements	None (fully passive design)
	Safety Features	Short-circuit protection; phantom power safe (no internal circuitry)

Warranty Regulations

The warranty period of this product is 1 year.

In the warranty period of non-man-made damage caused by the product performance failure can enjoy three packages of service.

Warranty card by the sales unit stamped after the effective. The alteration is invalid!

The following conditions (including, but not limited to, this) are not covered by the three-package service:

1. No warranty card or missing valid invoice or the date has exceeded the validity period of the three packages of services;
2. Not in accordance with the requirements of the product instructions for use, maintenance, management and damage caused;
3. The product model or code on the warranty voucher does not match the physical goods;
4. Damage caused by the dismantling and repair of non-authorized service providers;
5. Normal discoloration, wear and tear and consumption during the use of the product are not covered by the warranty;
6. The product cannot be used due to the user's own network reasons, please consult customer service staff.