

Audio Isolator

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 Audio Isolator.

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

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 stereo audio isolator specifically designed to address ground loop noise and long-distance signal transmission issues in multimedia systems. Under normal conditions, the shield voltage of audio or stereo signal transmission cables should be 0V. However, when ground loops occur, the voltage fluctuates around 0V, causing audio distortion, low-frequency humming, and high-frequency crackling from vehicle sparks. In severe cases, when transmission distances exceed 100 meters, high ground loop voltages may damage signal sources or receiving equipment, potentially endangering user safety. This product employs a built-in high-quality isolation transformer to achieve current isolation, effectively eliminating the aforementioned issues. It supports long-distance transmission (>100m without attenuation) and features a -20 dB attenuation DIP switch for convenient signal level matching. Combining a compact design with passive operation, it is suitable for home theater, automotive audio, professional PA systems, and broadcast environments.

1.2 Product Features

- ✧ Complete Ground Isolation: Built-in dual-channel 1:1 audio isolation transformers provide current isolation, eliminating ground potential noise, hum, and spark interference while protecting equipment from high-voltage damage;
- ✧ Long-Distance Transmission Support: Optimized design enables lossless transmission over 100 meters, with impedance matching ensuring signal integrity and preventing distortion or phase shift;
- ✧ -20 dB Attenuation: Integrated attenuation switch (0 dB / -20 dB selectable) facilitates matching high/low-level sources, preventing overload and distortion;
- ✧ Passive Design: No external power required, plug-and-play compatibility with any stereo system;
- ✧ Professional Connectivity: XLR inputs/outputs (gold-plated), compatible with 3.5mm adapters; TRS connectors available as an option;
- ✧ Noise Suppression: >60 dB ground loop noise attenuation, EMI/RFI shielded enclosure, flat frequency response up to 80 kHz;
- ✧ Safety Protection: Built-in >4 kV ESD/TVS protection against surge and static damage, compliant with safety standards;
- ✧ Portable and Rugged: Metal housing, compact dimensions, operates in 0° C~50° C environments, easily integrated into fixed or mobile systems.

Chapter 2 Interface Description



- ① OUT1 and OUT2: XLR output connectors;
- ② GND: Ground lift switch to eliminate 50/60 Hz hum and RF interference;
- ③ PAD: 0 dB / -20 dB attenuation switch for matching high/low level sources and preventing overload and distortion;
- ④ IN1 and IN2: XLR input connectors supporting instrument-level sources.

Chapter 3 Application Scenarios

- Long-distance audio transmission: Isolates ground loops in cable runs exceeding 100 meters, preventing signal distortion and equipment damage—ideal for broadcast studios or large installations.
- Automotive multimedia systems: Eliminates high-frequency “hissing” and low-frequency humming caused by spark interference; compatible with GPS/Bluetooth receivers.
- Home Theater/Recording Studio: Resolves multi-device ground loops, delivers pristine stereo output, and eliminates hum interference.
- Professional PA Systems: Integrates into mixing consoles or amplifier chains, supports -20 dB attenuation for matching high-level sources.

Chapter 4 Specification

Category	Parameter Item	Parameter Description
Audio	Channels	2 (Stereo: Left/Right Independent)

Performance		Isolation)
	Frequency Response	20 Hz~80 kHz (± 0.5 dB); Low-frequency optimized with no roll-off
	Total Harmonic Distortion (THD)	< 0.001% (1 kHz, 0 dBu input)
	Signal-to-Noise Ratio (SNR)	> 100 dB (A-weighted)
	Maximum Input/Output Level	+26 dBu (no attenuation); +26 dBu
	Impedance (Input/Output)	600 Ω / 600 Ω (balanced)
	Phase Shift	< 0.5° (full frequency range)
Isolation and Noise Suppression	Isolation Type	Current-isolated 1:1 audio transformer (600:600 Ω impedance ratio)
	Isolation Voltage	> 4 kV (input/output); >1 kV continuous withstand voltage
	Ground Loop Noise Suppression	> 60 dB (50/60 Hz hum); >40 dB high-frequency interference (hiss)
	Maximum Transmission Distance	> 100 m (no significant attenuation, standard XLR cable)
	EMI/RFI Shielding	Metal shielded enclosure + internal filter circuit (>30 dB suppression)
	Attenuation Switch	-20 dB fixed attenuation (DIP switch: ON/OFF); 0 dB bypass mode
Interfaces and Connectivity	Input Connector	2 x XLR female connectors (gold-plated, balanced)
	Output Connector	2 x XLR male connectors (gold-plated, balanced)
	Compatible Adapters	3.5mm TRS to RCA (optional);

	Cable Compatibility	Standard audio cable (RG-58 or better for long distances)
Physical and Environmental	Dimensions (L x W x H)	70 mm x 36 mm x 100 mm
	Weight	0.45 kg
	Enclosure Material	Metal housing, blue spray-painted
	Operating Temperature	0°C~50°C
	Storage Temperature	-20°C~70°C
	Humidity	5%~95% (non-condensing)
Power and Safety	Power Requirements	None (passive design, no batteries or external power required)
	Safety Features	Short-circuit protection; overvoltage protection (prevents damage from >100V ground loop voltage)
Installation and Control	Mounting Method	Plug-and-play (input source → this device → receiving device)
	Control Elements	Side DIP switch (-20 dB attenuation);
	Compatible Systems	Car audio, home stereo, professional PA, long-distance broadcasting

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.