



Radial engineering Twin-Iso Two Channel Line Level Isolator User Guide

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Radial

Radial Engineering Twin-Iso Two Channel Line Level Isolator



Product Information

Radial Twin-Iso

- The Radial Twin-Iso is a stereo (dual mono) line-level isolator designed to isolate audio equipment and eliminate troublesome noise caused by ground loops. It employs two high-performance Jensen isolation transformers to ensure the best signal transfer without artifacts or distortion. The Twin-Iso is made with 14 gauge steel and features an internal welded I-beam frame for maximum rigidity. It is built to withstand even the most abusive touring environments.
- The Twin-Iso is a versatile device that can be used for sub-mixing multiple consoles, isolating amplifier distribution racks, connecting remote speaker towers, and eliminating ground loop problems when equipment needs to be connected to alternate power sources. It provides electrical isolation between two line-level devices, such as mixing consoles, remote speakers, crossovers, and amplifier racks.
- The Twin-Iso is equipped with two XLR inputs and two XLR outputs. Each channel is 100% isolated from the other, allowing two different audio sources to use the Twin-Iso simultaneously. The transformers used in the Twin-Iso are of high quality and can handle high signal levels without saturation or introducing phase distortion or group delay.

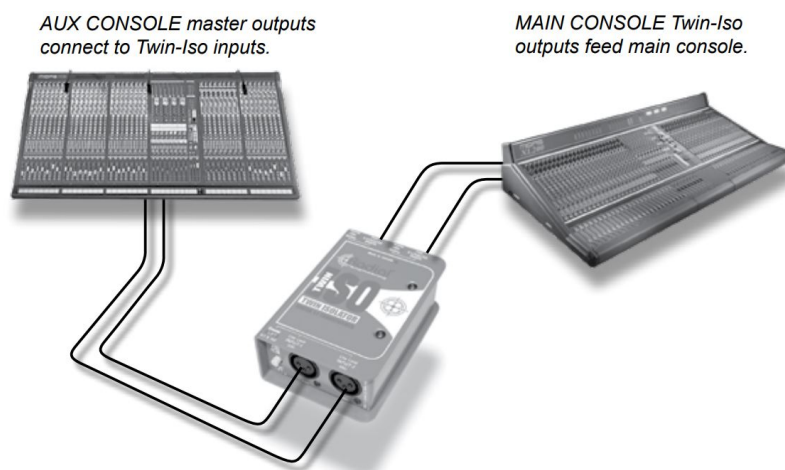
Product Usage Instructions

- The Radial Twin-Iso has been designed to provide electrical isolation between two line-level devices such as between two mixing consoles, remote speakers, crossovers, and amplifier racks.
- Use the Twin-Iso anywhere source and destination devices may cause system noise because of different ground potentials (often referred to as ground loops).
- So-called ground loops are caused by differing voltage references from various pieces of equipment that when connected together, can introduce a 60-cycle hum in the sound system. Although there are various solutions that can be engineered to eliminate noise, the simplest and most effective is to isolate the source and destination with an audio transformer.

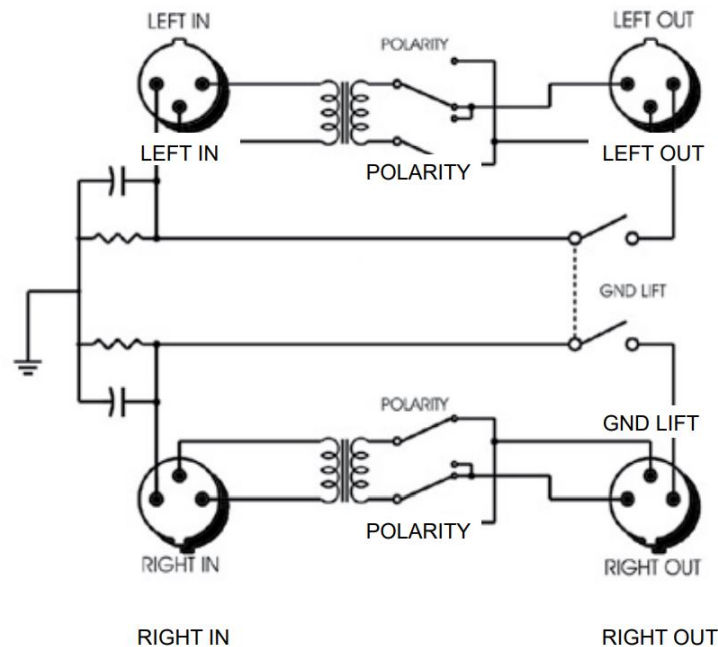
- The Radial Twin-Iso employs two high-quality Jensen transformers to do the task. Jensen is renowned for their quality and the ability of their transformers to handle high signal levels without saturation and transfer the signal without introducing phase distortion or group delay. Although the cost is higher, a good quality transformer will assure the signal remains true to the source, resulting in better sound. When you first pick up the Radial Twin-Iso, you will immediately notice the weight.
- This 'hefty' device employs a welded steel I-beam internal construction to assure the internal PCB will not torque, preventing part failure. Besides the heavy-duty enclosure, the extra-large transformers add to the Twin-Iso's robustness. As a rule, the larger the transformer, the more signal handling capacity it will have and Jensen transformers can drive loads of 600 ohms up to +21dBu at 20Hz.
- The Radial Twin-Iso is equipped with two XLR inputs and two XLR outputs. Each channel is 100% isolated from the other to eliminate cross-talk or interaction, thus allowing two completely different audio sources to use the Twin-Iso at the same time. Although the Twin-Iso is designed for +4dB professional line-level signals, the transformers will actually handle over 20dB without choking.
- Each of the Twin-Iso's outputs features a 180° polarity reverse switch to ensure both consoles are 'in phase' and pushing the speakers in the same direction. This allows the Twin-Iso to feed a sub-group or auxiliary input of a console where polarity reversals are generally not provided. Finally, the Twin-Iso is equipped with a ground lift switch to further reduce system noise should it be present.

USING THE TWIN-ISO

- As with all Radial products, using the Twin-Iso is simple and straightforward. Make sure the sound system is turned off and all levels are set to zero before making audio connections. This will avoid any pops in the sound system that could cause damage to speakers.
- The Twin-Iso is completely passive and does not require a power supply of any kind. Connect the source device to the Twin-Iso inputs. Connect the Twin-Iso outputs to the destination device. Turn the system up slowly and listen for noise. In the unlikely event you should encounter noise, simply depress the ground lift switch. That's all there is to it.



TWIN-ISO BLOCK DIAGRAM



J-RAK

The optional J-RAK™ is a high-density rack shelf for Radial DIs and splitters. It's a 2RU rack chassis that allows up to 8 Radial devices in one neat high-density 19" package. The DIs can be mounted with either the input side or output side facing the front. Ideal for studio or touring. Constructed of 14 gauge steel with a baked enamel finish.



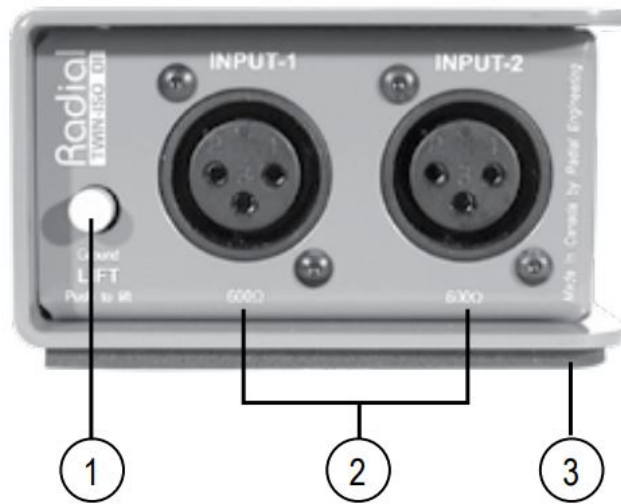
J-CLAMP

The optional J-CLAMP™ can mount a single Radial device to virtually any surface. Perfect for hiding away inside racks, on podiums or under tables. Constructed of 14-gauge steel with a baked enamel finish.



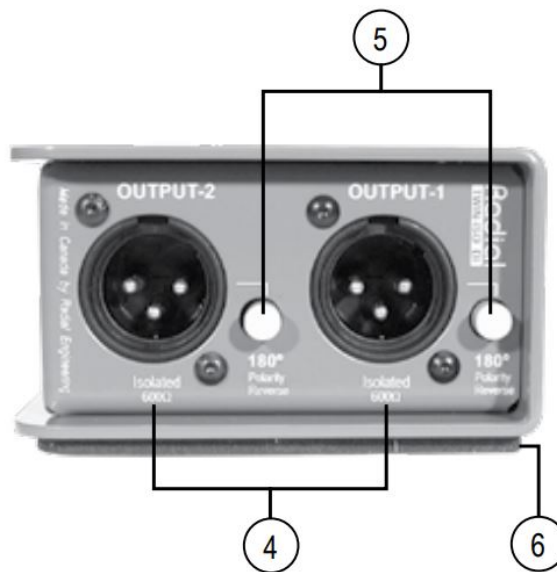
INPUT PANEL

1. **Ground lift (inputs):** Lifts the ground pin-1 on both XLR input connectors.
2. **Input-1 & 2:** For low impedance, balanced line-level signals.
3. **Bookend design 14:** gauge steel outer shell creates a protective zone around connectors and switches.



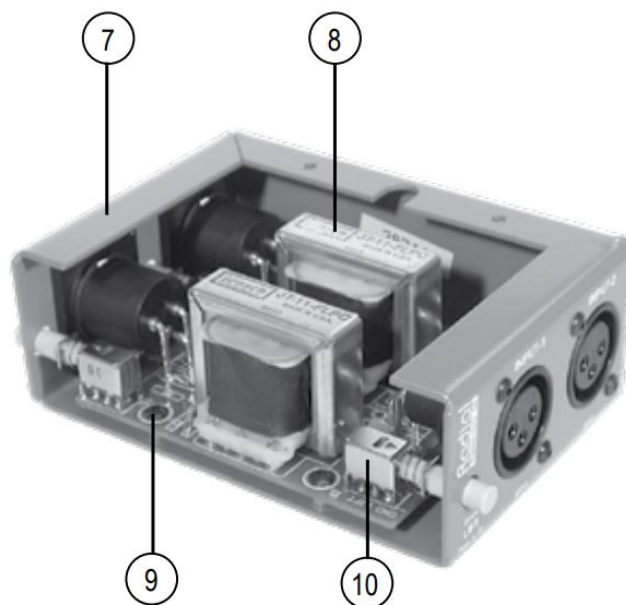
OUTPUT PANEL

4. **Output-1 & 2:** line-level transformer-isolated outputs.
5. **Polarity reverses** 180°-Polarity reverse switch for outputs-1 & 2.
6. **Full-bottom no-slip pad:** This provides electrical isolation and plenty of “stay-put” friction to keep the Twin-ISO in one place.



CONSTRUCTION

7. **Ultra rigid steel I-beam:** enclosure eliminates the stress that could torque the PC board and cause solder joint failure.
8. **Jensen transformers:** offer outstanding audio performance.
9. **Military-grade double-sided PCB:** with plated through-holes is bolted to welded steel standoffs.
10. **Sturdy high-cycle PCB:** mounted switches are rated for long life.



TWIN-ISO SPECIFICATIONS

Frequency response	10Hz to 50kHz +/- 1dB
Max output level	+21dBu (20Hz, 1% THD)
Phase distortion	0.3° at 20Hz
Total harmonic distortion	0.001% THD @1k, +4dBu (0.035% at 20Hz)
Common-mode rejection	94dB @ 60Hz (83dB @ 3kHz)
Inputs	Balanced, line-level, pin-2 hot
Outputs	Balanced, line-level, pin-2 hot
Power requirement	None, completely passive
Size	3.25" x 5" x 1.875"
Weight	2 lbs.

Step 1: Connecting the Radial Twin-Iso

1. Connect the audio source to be isolated to one of the XLR inputs on the Twin-Iso.
2. Connect the destination device to one of the XLR outputs on the Twin-Iso.
3. If needed, repeat steps 1 and 2 for the second channel of the Twin-Iso.

Step 2: Ground Loop Elimination

If you are experiencing ground loop noise in your audio system, follow these steps:

1. Ensure that all devices in the audio chain are properly grounded.
2. Connect the Twin-Iso between the source and destination devices that are causing the ground loop noise.
3. The Twin-Iso will electrically isolate the devices, eliminating the ground loop noise.

Step 3: Adjusting Signal Levels

- The Twin-Iso is designed for +4dB professional line-level signals. However, the transformers can handle over 20dB without choking. Adjust the signal levels of the connected devices accordingly to achieve the desired audio output.

Step 4: Enjoying Problem-Free Connectivity

- The Radial Twin-Iso is built to provide years of problem-solving connectivity. Enjoy the improved audio quality and noise-free performance that the Twin-Iso offers.

RADIAL LIMITED THREE-YEAR TRANSFERABLE WARRANTY


- RADIAL ENGINEERING LTD. ("Radial") warrants this product to be
- free from defects in material and workmanship and will remedy any such defects free of charge according to the terms of this warranty.
- Radial will repair or replace (at its option) any defective component(s) of this product (excluding finish and wear and tear on components under normal use) for a period of three (3) years from the original date of purchase.
- In the event that a particular product is no longer available, Radial reserves the right to replace the product with a similar product of equal or greater value.
- To make a request or claim under this limited warranty, the product must be returned prepaid in the original shipping container (or equivalent) to Radial or to an authorized Radial repair center and you must assume the risk of loss or damage. A copy of the
- an original invoice showing the date of purchase and the dealer name must accompany any request for work to be performed under this limited and transferable warranty.
- This limited warranty shall not apply if the product has been damaged due to abuse, misuse, misapplication, accident, or as a result of service or modification by any other than an authorized Radial repair center.

LIMITED WARRANTY


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Documents / Resources

www.radialeng.com



Twin-Iso™



User Guide

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