

## SAFETY PRECAUTIONS:

- Read these instructions.
- Follow these instructions.
- Heed all notes and warnings.
- Do not use this device near water.
- Clean this device only with a dry cloth.
- Keep these instructions for future reference.
- Damage to this device by improperly connected and/or grounded equipment is not covered under warranty.
- Do not defeat an amplifier's safety ground - which is provided by the 3-prong AC power-cord plug! Doing so may not only be ILLEGAL, but it may also pose a SHOCK or ELECTROCUTION HAZARD.

# MESA/BOOGIE®

## CLEARLINK™ CONVERTER / ISO TRANSFORMER

### Owner's Manual

Congratulations on your choice of MESA/Boogie® and welcome to the MESA® Family! The same passion for excellence, commitment to quality and dedication to customer satisfaction is present in each and every product we make in our one-and-only shop in Petaluma, California, U.S.A. Rest assured that the very same people that hand-build the finest amplifiers in the world, also built your CLEARLINK™ CONVERTER/ISO TRANSFORMER and you have access to the same resources for help that all our customers do. Call on us anytime and enjoy!

## CLEARLINK™ CONVERTER/ISO TRANSFORMER

The CLEARLINK™ CONVERTER/ISO TRANSFORMER is a high performance passive audio device that can receive a balanced guitar signal from as far away as 330ft/100m with great integrity and noise immunity.

Used in tandem with the CLEARLINK™ BUFFER/BALANCED LINE-DRIVER, it can manage long-distance guitar signals between wireless units, pedalboards, and amplifiers - whether on-stage or off-stage, distance doesn't really matter anymore. In the studio, it allows a guitar player to sit in the control room and connect to a far away amplifier in the live room. The long-distance connection is made with a standard balanced XLR microphone cable and the output connection going to an amplifier's input is made with a standard shielded 1/4" TS instrument cable.

The ability to receive a guitar signal from extreme distances cleanly, and without degradation, is made possible by a specially designed and shielded audio isolation transformer. It's complimented with ground-lift and phase-reverse switches to safely prevent ground loop hum and noise, and to correct phase cancellation problems, both of which can occur when running multiple and/or channel switching amplifiers.

Furthermore, it can be used with unbalanced guitar signals from a wide variety of pedals and other buffered devices, to safely eliminate ground loop hum and noise, and to correct phase reverse issues, making it a must-have tool for every guitar player and technician.

## CONTROLS & CONNECTIONS

It's always a good idea to make any audio connections with every piece of equipment in a guitar rig turned off, or at least the amplifier volume(s) turned down, to avoid loud bursts of sound from damaging speakers or other components.

**IN:** This combination 1/4" phono and 3-pin female XLR jack is the input and accepts either a balanced or an unbalanced, buffered guitar signal. For balanced input signals, use either a standard XLR microphone cable or a shielded 1/4" TRS (tip, ring & sleeve) balanced cable, up to 330ft/100m long. For unbalanced input signals, use a shielded 1/4" TS (tip & sleeve) instrument cable and always aim for the best quality and shortest length possible - this will minimize the signal's susceptibility to noise and interference.

**OUT:** This 1/4" phono jack is the output and provides an unbalanced signal that is electrically isolated from the input, via the specially designed and shielded audio isolation transformer. Connect this jack to the input of a pedal or an amplifier, which is properly grounded with a 3-prong AC power-cord plug, using a high quality shielded 1/4" TS instrument cable that is 5ft/1.5m long or less - in order to minimize high-frequency roll-off.

**Note:** If the output is going to be routed through a patch-box or patch-panel, try not to exceed the 5ft/1.5m length limitation, which applies to the entire length of cable con-

nected between the CLEARLINK™ CONVERTER/ISO TRANSFORMER output, and the pedal or amplifier input.

**PHASE:** This pushbutton switch inverts (reverses) the phase of the output signal in relation to the input signal. When the switch is in the "IN" position, the signals are in-phase (0deg), and when it's in the "OUT" position, the signals are out-of-phase by 180deg (reversed). With a single amplifier, it's best to leave this switch set to the "IN" position. Running multiple amplifiers at once can sometimes lead to a phase cancellation problem, which results in a sound that can be described as hollow, thin, not as loud, lacking low end or fullness... The best way to test and fix this is to try and set the amplifiers to the same volume level, individually. Then activate the amplifiers simultaneously, and listen with this switch in both positions - the best, correct setting will result in a sound that can be described as fuller or slightly louder.

**GROUND:** This push-button switch safely lifts (isolates) the ground connection between the IN and OUT jacks, eliminating a ground loop and its hum and noise. When the switch is in the "IN" position, the grounds are connected, and when it's in the "OUT" position, the ground connection is lifted. Try both positions and use the setting which results in the least amount of hum and noise.

**Note:** Any device that contains an audio isolation transformer is susceptible to hum from the magnetic field generated by a power transformer, such as those found in an amplifier, effect processor, "wall-wart" power adapter or universal pedalboard power supply. Even with adequate shielding of the audio transformer and the device itself, there can still be a potential for unexpected hum. So if an unusual hum does occur, which cannot be eliminated by either position of the GROUND switch, try re-locating the

CLEARLINK™ CONVERTER/ISO TRANSFORMER. Typically it would only require being moved a short distance in a particular direction to resolve this type of hum.

## FAQ & HELPFUL HINTS

**Can I use the CLEARLINK™ CONVERTER/ISO TRANSFORMER as a DI-box?**

Sorry, but it's not a direct-box.

**Can I use the CLEARLINK™ CONVERTER/ISO TRANSFORMER for re-amping?**

Sorry, but it's not a re-amp device.

**What is "galvanic isolation" and does the CLEARLINK™ CONVERTER/ISO TRANSFORMER have it?**

Galvanic isolation is another term used to describe two circuits that are electrically and physically separated from one another, in order to prevent a ground loop from occurring, which results in hum and noise. All audio isolation transformers have/provide it; some manufacturers choose to use the term and others don't, and just go with "isolated" or "isolation". It's all the same, so yes, the CLEARLINK™ CONVERTER/ISO TRANSFORMER has "galvanic isolation", and it is provided by a specially designed and shielded audio isolation transformer.

**Can I connect pedals between the CLEARLINK™ CONVERTER/ISO TRANSFORMER and the input of my amplifier?**

You sure can, just remember to use a high quality shielded 1/4" TS instrument cable that is 5ft/1.5m long or less, between the CLEARLINK™ CONVERTER/ISO TRANSFORMER and the first pedal, in order to minimize high-frequency roll-off.

**Can I use the CLEARLINK™ CONVERTER/ISO TRANSFORMER without a CLEARLINK™ BUFFER/BALANCED LINE-DRIVER to break a ground loop that is causing buzz, hum and noise?**

Yes, the CLEARLINK™ CONVERTER/ISO TRANSFORMER can be used with unbalanced guitar signals from a wide variety of pedals and other buffered devices, to safely eliminate ground loop hum and noise, and to correct phase reverse issues, making it a must-have tool for every guitar player and technician. Just remember to use a high quality shielded 1/4" TS instrument cable that is 5ft/1.5m long or less, between the CLEARLINK™ CONVERTER/ISO TRANSFORMER and the input of your amplifier, in order to minimize high-frequency roll-off.

**I am running multiple amplifiers, each with a CLEARLINK™ CONVERTER/ISO TRANSFORMER, but my tone (still) sounds weird, why is that?**

Running multiple amplifiers at once can sometimes lead to a phase cancellation problem, which results in a sound that can be described as hollow, thin, not as loud, lacking low end or fullness... The best way to test and fix this is to try and set the amplifiers to the same volume level, individually. Then activate the amplifiers simultaneously,

and listen with the PHASE switch of each CLEARLINK™ CONVERTER/ISO TRANSFORMER in both positions, all possible combinations - the best, correct settings will result in a sound that can be described as fuller or slightly louder.

**I am running multiple amplifiers, each with a CLEARLINK™ CONVERTER/ISO TRANSFORMER, but (one or) some of them (still) have a buzz/hum, how can I get rid of it?**

First, make sure that all the amplifiers are properly grounded with a 3-prong AC power-cord plug! Older amplifiers with 2-prong AC power-cord plugs should be checked for proper grounding, and if necessary, serviced before using them in a guitar rig. Defeating an amplifier's safety ground may not only be ILLEGAL, but it may also pose a SHOCK or ELECTROCUTION HAZARD. That said, and as you're probably already aware, the most common cause of buzz, hum, and noise when connecting multiple amplifiers in the same rig, is a ground loop. The isolation transformer inside the CLEARLINK™ CONVERTER/ISO TRANSFORMER and its GROUND switch, work together to safely eliminate a ground loop. With a CLEARLINK™ CONVERTER/ISO TRANSFORMER connected to the input of every amplifier in the rig, the GROUND switch on ONLY one CLEARLINK™ CONVERTER/ISO TRANSFORMER should be set to the "IN" position, so it can "pass" its earth ground reference to any pedals, and the guitar. The GROUND switch on ALL the remaining CLEARLINK™ CONVERTER/ISO TRANSFORMER's should be set to the "OUT" position, to eliminate the ground loops that would otherwise form. Try setting each GROUND switch to the "IN" position, individually, and use the combination which results in the least amount of buzz, hum and noise.

Second, remember that any device which contains an

audio isolation transformer is susceptible to hum from the magnetic field generated by a power transformer, such as those found in an amplifier, effect processor, "wall-wart" power adapter or universal pedalboard power supply. Even with adequate shielding of the audio transformer and the device itself, there can still be a potential for unexpected hum. So if an unusual hum does occur, which cannot be eliminated by either position of a GROUND switch, try re-locating the CLEARLINK™ CONVERTER/ISO TRANSFORMER. Typically it would only require being moved a short distance in a particular direction to resolve this type of hum.

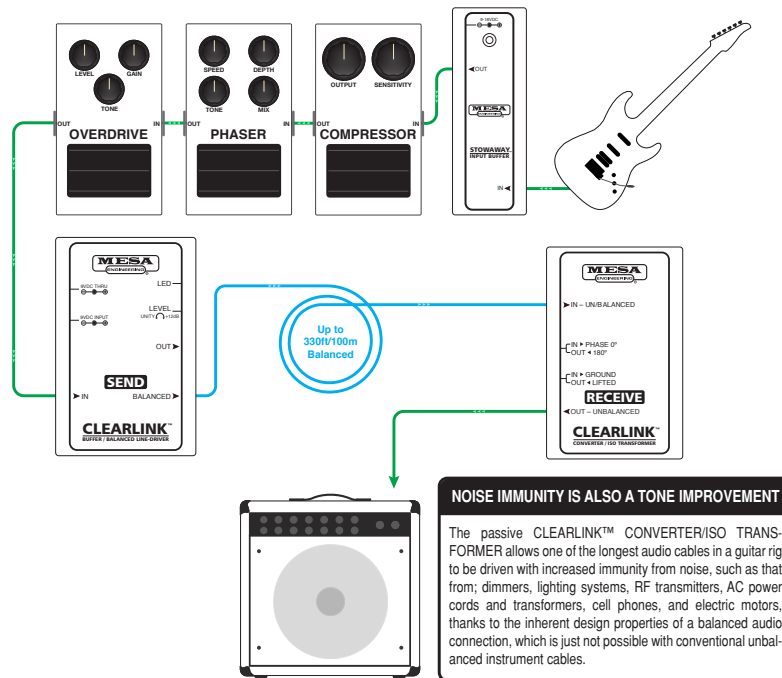
**SPECIFICATIONS:**

- Maximum Input Level: +16dBu
- Frequency Response: 20Hz - 20kHz (-1dB)
- Total Harmonic Distortion: 0.002% (1kHz, +4dBu)
- CMRR (Common-Mode Rejection Ratio): 120dB (Bal. 60Hz, +4dBu)
- Weight: 0.512 lbs (232 g)
- Dimensions (W x D x H): 3.86 x 2.48 x 1.71 inch (98 x 63 x 44 mm)

**NOTE:** Device specifications are subject to change without notice.

Application Diagrams are available at [www.mesaboogie.com](http://www.mesaboogie.com)

**CLEARLINK™ CONVERTER/ISO TRANSFORMER – SETUP #1**



**NOISE IMMUNITY IS ALSO A TONE IMPROVEMENT**

The passive CLEARLINK™ CONVERTER/ISO TRANSFORMER allows one of the longest audio cables in a guitar rig to be driven with increased immunity from noise, such as that from; dimmers, lighting systems, RF transmitters, AC power cords and transformers, cell phones, and electric motors, thanks to the inherent design properties of a balanced audio connection, which is just not possible with conventional unbalanced instrument cables.

**MESA/BOOGIE**  
The Spirit of Art in Technology™



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