ADDAC System ADDAC710 Balanced Outputs User Guide

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ADDAC System ADDAC710 Balanced Outputs

DESCRIPTION

ADDAC710 is a dual channel Isolated DI box and is all about keeping the sound coming from your Modular free from any undesired noisy interferences, making sure that what you're getting from your outputs is what your Modular is actually producing. It provides galvanic electrical isolation between the Modular system and external sources preventing impedance mismatch and ground loop-induced hum.

ADDAC's 710 circuits is designed around a unity 1:1 type Low-cost Audio Transformer operating in the 20 Hz to 20 kHz range, this impedance-matching transformer provides two fully balanced outputs (via XLR connectors).

ADDAC710 is a low-cost alternative to our ADDAC800X High-End Outputs module, we redesigned the original circuit using a smaller low-cost transformer that also reduced its depth allowing it to fit shallow Eurorack cases.

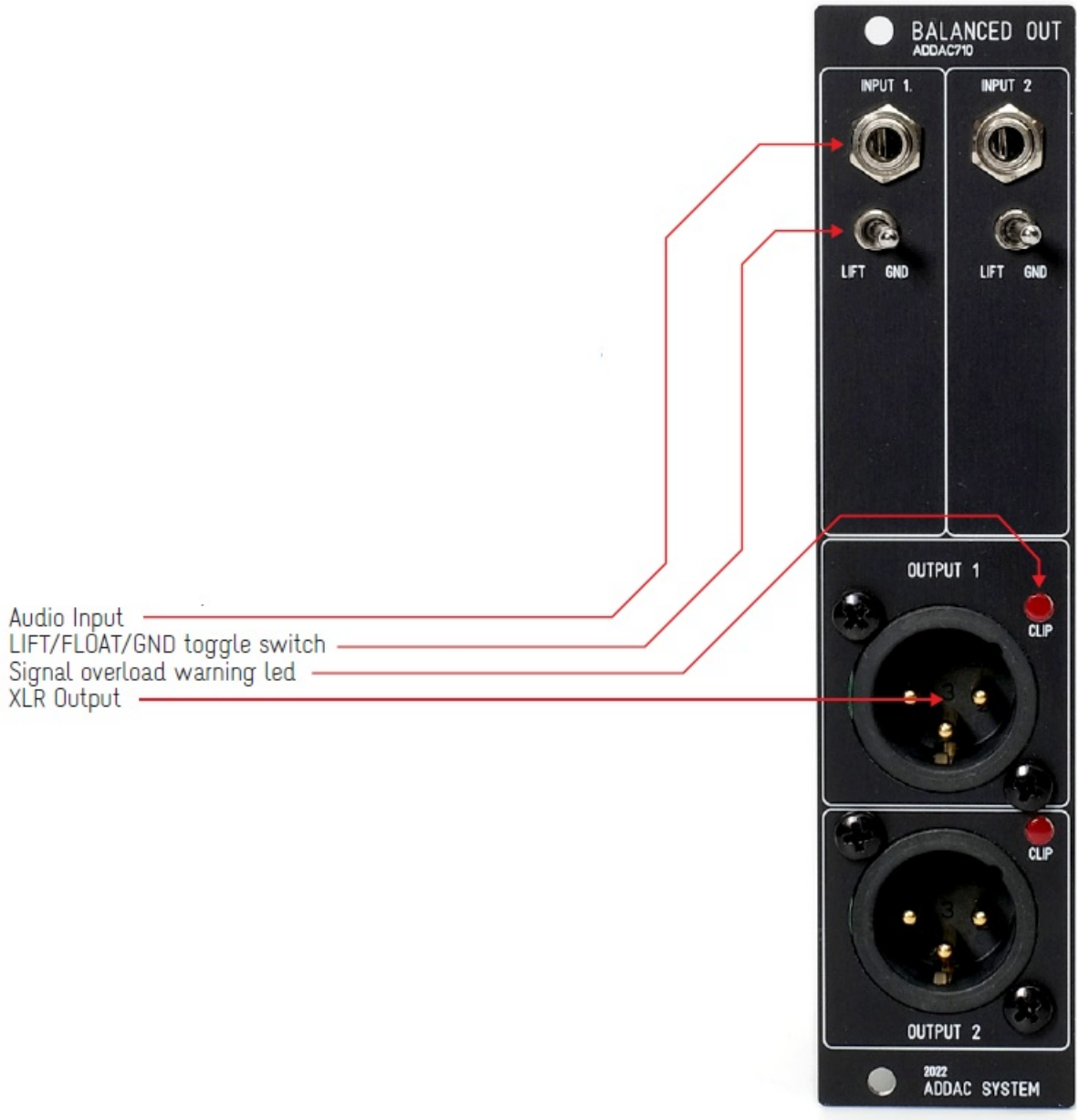
There are two independent channels in the module:

- Audio Input
- LIFT/FLOAT/GND toggle switch
- Signal overload warning led
- XLR Output

The LIFT/FLOAT/GND 3-way switch lets you choose between lift, ground or floating ground. In the LIFT position (left) the module circuit will be "lifted" to the ground through a 100R resistor and a 10nF capacitor. In the FLOAT position (middle) Ground will not be shared leaving ins and outs grounds completely apart from each other fully isolating both signals. in the GND position (right) Ground will be shared between inputs and outputs, here no isolation is used.

Any of these three positions may be the best form of avoiding ground loops or any other undesired interference occurring between your modular and the sound system you're plugging it into. Try out which one of these options will work best in any given situation.

This module will also be available as a full DIY kit.



The importance of using Audio Transformers
Applying transformer-balanced output isolation has lots of advantages over other less expensive ways of dealing with ground loop issues. This method provides the chance to set a very simple and clean circuit in which the signal transfer process develops smoothly and humming-free.

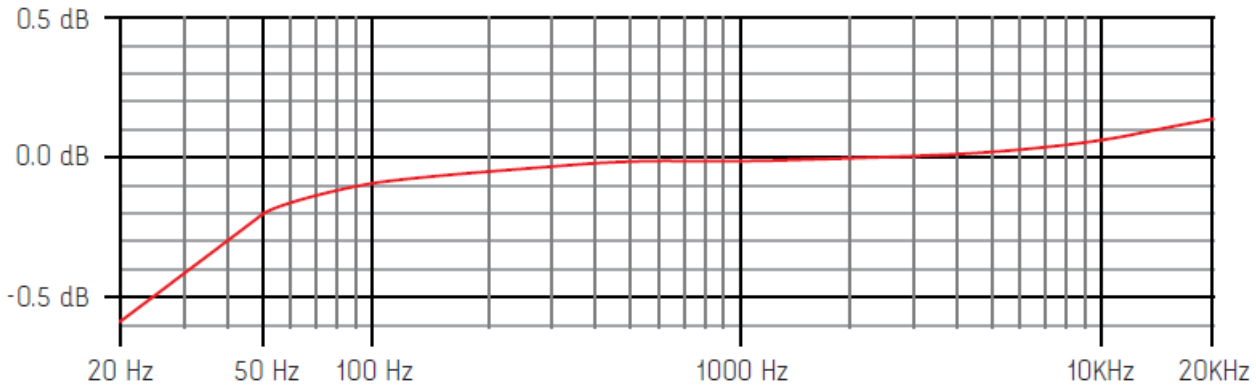
The transformer is a device that performs both signal balancing and high-to-low (or vice-versa) impedance conversion while rejecting straggled DC voltage and Radio Frequency Interference from signal passing through a magnetic bridge. In a transformer, two (or more) coils (called windings) of insulated wire wound around a magnetic metal core allow for its input(s) and output(s) not to be physically connected together. When an AC signal passes through the input winding (the primary), a perfectly related AC signal appears on the output winding (the secondary).

This way, by the fact that the signal flows via inductive coupling between the two windings of the transformer, this module presents the most accurate electrical isolation between its input and output. The same number of windings on each coil guarantees that there's no gain loss when the audio signal passes from the primary to the secondary windings. Furthermore, since these two windings are insulated from each other, the transformer will

electrically isolate ADDAC710 from any other device, preventing hum problems coming from the outside ground.

Being a low-cost transformer the frequency response curve is not as linear as our 800X, still the -0.2dB attenuation at 50Hz feels negligible.

TRANSFORMER FREQUENCY RESPONSE



Phantom Power
+48V Phantom Power is NOT needed for the module to operate. In any case having Phatom Power ON won't influence the module operation.

CONTROLS DESCRIPTION

For feedback, comments or problems please contact us at: addac@addacsystem.com.

Documents / Resources

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