



OriGain Integrated Amplifier Owner's Manual

Models: A250, AD250

Got a Question or Need Help?

Email our technical support team at: support@miccatron.com for personalized assistance with the setup and use of this product. Please visit our product information website www.miccatron.com for the following:

- Product Updates
- User's Manuals
- Troubleshooting Wizard
- Technical Support Request

When contacting technical support, be sure to include your order information, product model, and serial number from the bottom of the device.

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1 Introduction

Thank you for your purchase! The OriGain is a compact yet powerful integrated amplifier with an efficient class-D topology that provides up to 50 watts of power per channel through each of its two channels. Use the OriGain wherever you need a capable amplifier that does not take up a lot of space.

1.1 Feature Highlights

1.1.1 Input and Output

- AD250 Only: USB Audio Class 1.0 input for use with Windows, MAC OSX, and Linux.
- AD250 Only: Optical S/PDIF digital input
- Stereo RCA input for connecting analog signal source
- Rear 3.5mm analog stereo pre-amp output
- Five-way binding post speaker output, 4 to 8 Ohm compatible.

1.1.2 Digital Audio Formats (AD250 Only)

- PCM audio up to 24-bit/96kHz through USB
- PCM audio up to 24-bit/192kHz through optical

1.1.3 Key Components

- AD250 Only: C-MEDIA CM6510B USB 2.0 Full Speed audio controller
- AD250 Only: Wolfson WM8740 High Performance Stereo D/A Converter
- Texas Instrument TPA3116D2 Stereo Class D Amplifier

1.1.4 What's Included

- Micca OriGain unit
- AC power adapter
- 3.5mm to RCA audio cable
- USB Data Cable (AD250 Only)
- User's Manual

Note: All information contained in this manual was correct at the time of publication. However, as our engineers are always updating and improving the product, your device may have a slightly different appearance or modified functionality than presented in this manual. These changes will be reflected in future revisions of this manual.

1.2 Hearing Damage – IMPORTANT!

Please exercise caution and avoid listening to music at excessive volume. The following excerpt is from the CDC website:

“Hearing loss can result from damage to structures or nerve fibers in the inner ear that respond to sound. This type of hearing loss, termed “noise-induced hearing loss,” is usually caused by exposure to excessively loud sounds and cannot be medically or surgically corrected.

Sound intensity is measured in decibels with a sound level meter. Noise-induced hearing loss can result from a one-time exposure to a very loud sound (at or above 120 decibels), blast, impulse, or by listening to loud sounds (at or above 85 decibels) over an extended period. The louder the sound, the shorter the time period before hearing damage occurs.”

Listen smart, protect your hearing!

1.3 Other Notices and Precautions

1.3.1 FCC Statement

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

1.3.2 Disposing of the Product

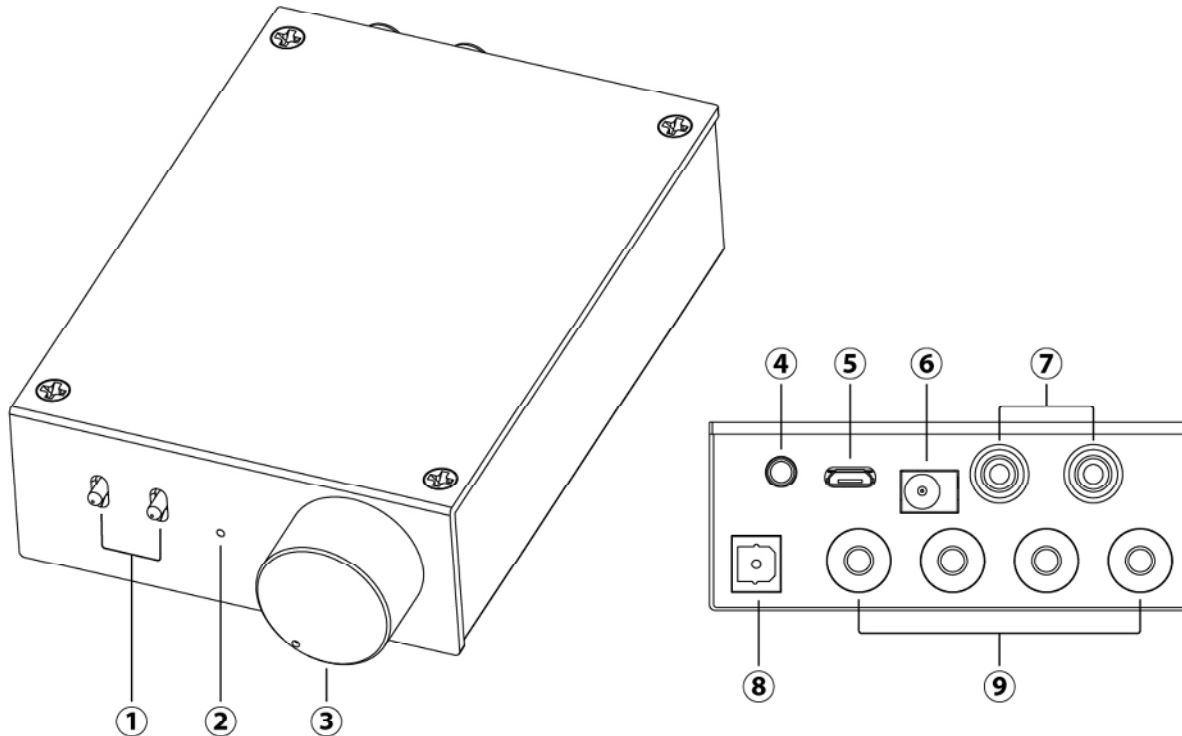
When you dispose of the product, be sure to dispose it appropriately. Some locales may regulate disposal of electrical device, please consult with your local authority.

1.3.3 Additional Precautions

- Do not let the product come into contact with water or other liquids.
- Do not disassemble, modify, or attempt repair of the product; any damage resulting from these actions will not be covered by the product warranty.
- Do not use excessive force when pressing buttons or rotating knobs.
- Avoid hitting the product, shaking the product, and keep it away from strong magnetic fields.
- Electrostatic discharge may cause the product to malfunction.

2 Product Overview

2.1 Connections and Controls

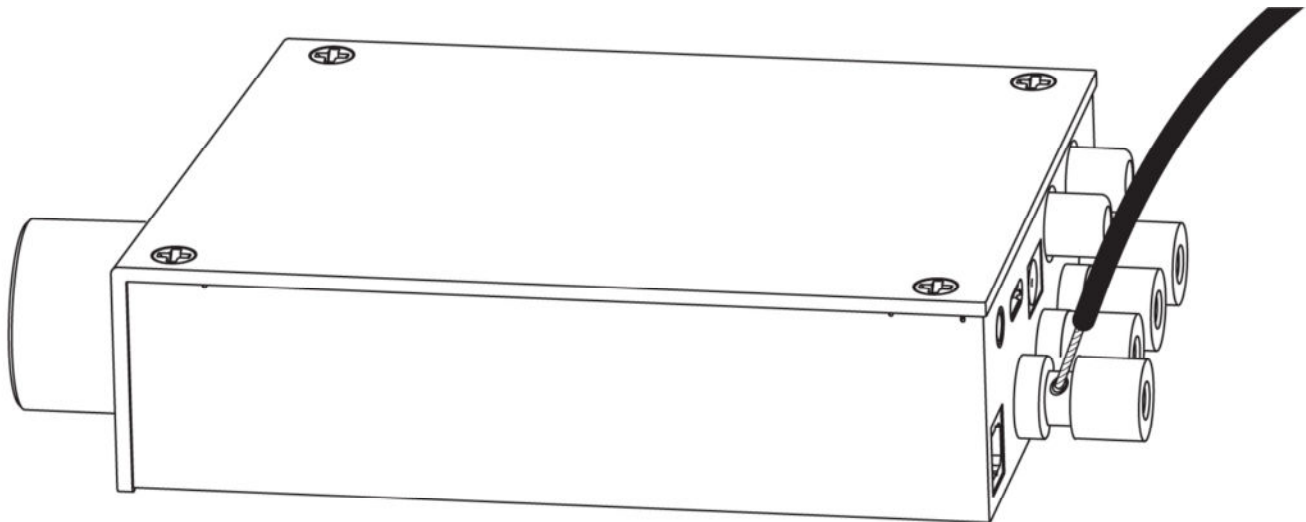


	Name	Description
1	Input Selector Switches	AD250 only, selects between analog and digital inputs.
2	Power Indicator Light	Indicates power status. Red = On, Off = Off.
3	Volume, On/Off Switch	Combination power on/off switch and volume control.
4	Pre Out	Stereo 3.5mm pre-amp output jack for connecting other audio equipment such as a subwoofer. Signal level is controlled by the volume knob.
5	USB	AD250 only, digital audio input interface from a computer's USB host port.
6	DC 24V/5A Jack	Power adapter jack. Only use the power adapter supplied with the OriGain.
7	Analog Input	Stereo analog input RCA jacks for connecting audio source.
8	S/PDIF Optical Input	AD250 only, digital audio input from an optical output source.
9	Speaker Output	Stereo output for connecting speakers with 4 to 8 Ohm impedance.

3 Connecting Speakers

The OriGain has stereo speaker outputs in the form of five-way binding posts that are able to accept banana plugs, or bare wire up to 14-gauge. Follow the instructions below to connect the speaker wire:

- Banana Plug – Hand tighten the clear portion of each five-way binding post. Insert banana plugs directly into the center of each binding post, making sure that the plug is fully inserted and secure.
- Bare Wire – Strip off 3/8th inch of insulation from the ends of the speaker wire. Loosen the clear portion of each five-way binding post until you can see the through-hole, as illustrated below. Feed the exposed speaker wire into the through-hole and hand tighten the binding post until the speaker wire is held neatly and firmly in place. Make sure there are no frayed strands of speaker wire.



3.1 Speaker Compatibility

The OriGain works with speakers from 4 to 8 Ohms in impedance, with power specification from 15 to 100 watts per speaker.

Great care must be exercised when using the OriGain at high playback volume to prevent damaging the speakers. If the playback volume becomes excessive to the point of being audibly distorted, ***this means the system is being used incorrectly and the volume must immediately be reduce to a level where the distortion is no longer audible.*** Continuing to play music with audible distortion will lead to permanent speaker damage and is not covered under warranty by either the speaker manufacturer or Micca.

3.2 Speaker Wire Considerations

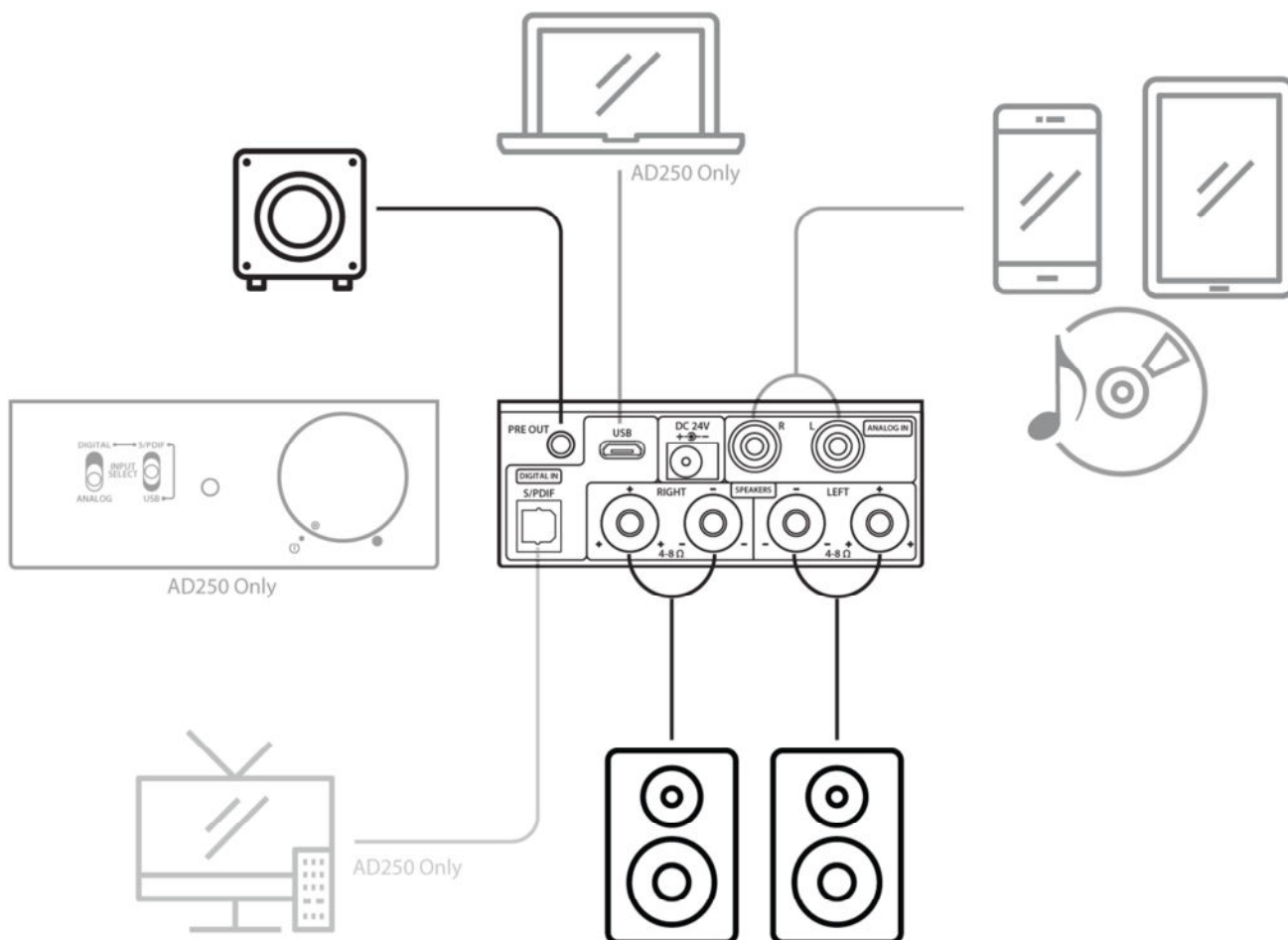
The OriGain should be connected to speakers with good quality speaker wire of appropriate thickness for best performance.

The gauge or thickness of the speaker wire can affect overall performance. Always choose a speaker wire of the appropriate gauge to prevent excessive speaker wire resistance. Using undersized speaker wire can result in loss of volume, detail, and dynamic range. Please select speaker wire based on the following minimum recommendations:

- 50 feet or less - 16 Gauge 2 Conductor
- 50 to 80 feet - 14 Gauge 2 Conductor
- 80 to 120 feet - 12 Gauge 2 Conductor (must use banana plug)
- 120 to 200 feet - 10 Gauge 2 Conductor (must use banana plug)

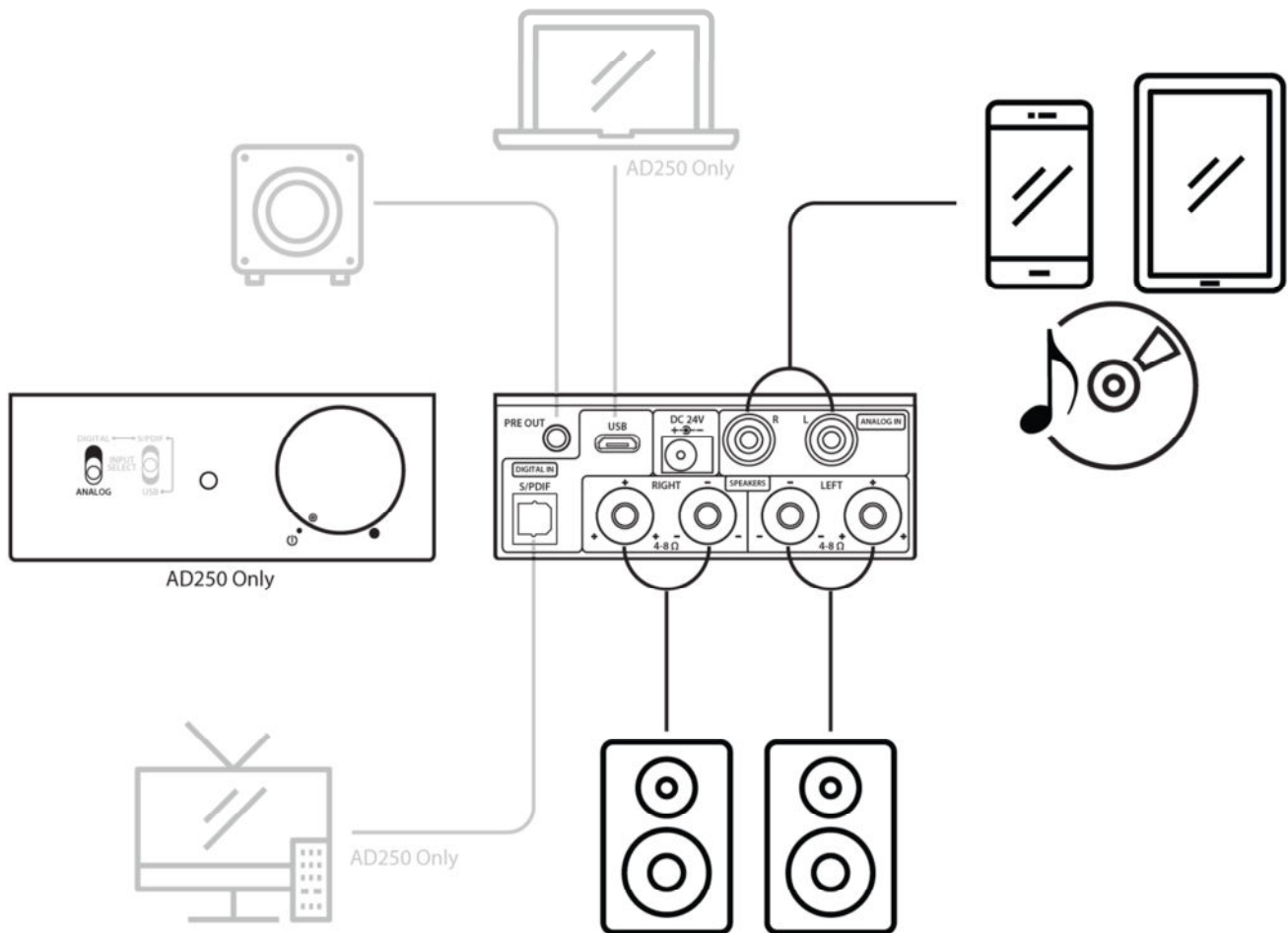
3.3 Subwoofer Connection (Optional)

The "PRE OUT" jack on the back of the OriGain can be used to connect to a subwoofer using a 3.5mm to RCA cable. The subwoofer must be a self-powered model.



4 Analog Input Setup

The easiest and fastest way to begin enjoying your new OriGain is to connect it to a sound source such as CD player, tablet, or smartphone. To do so, connect your sound source to the “ANALOG IN” input jacks on the back of the OriGain as illustrated below. Additionally on the AD250, set the front selector switch to “Analog”.

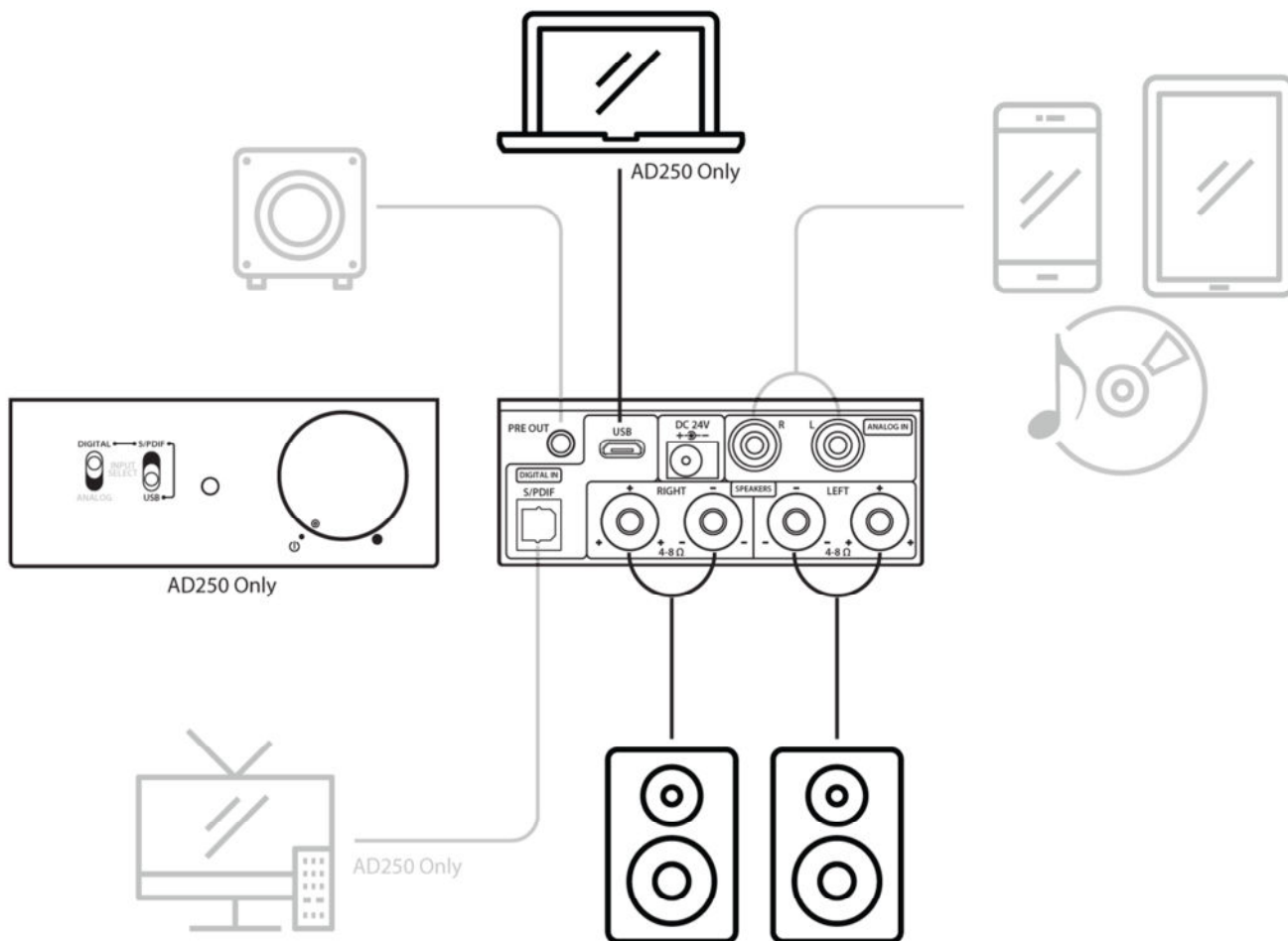


Here are some helpful recommendations to keep in mind while you use the analog input on the OriGain:

- For best sound quality, set the sound source volume to max, and use the volume knob on the OriGain to set the desired listening volume.
- The analog input on the OriGain is not compatible with phono-level signals. Record players without a built-in pre-amp will need a separate pre-amp for proper signal level.
- The sound signal is also sent to the “PRE OUT” jack on the back of the OriGain. This is useful for connecting a subwoofer. The subwoofer should have a Volume/Gain knob for setting its relative playback volume.


5 USB Audio Setup (AD250 Only)

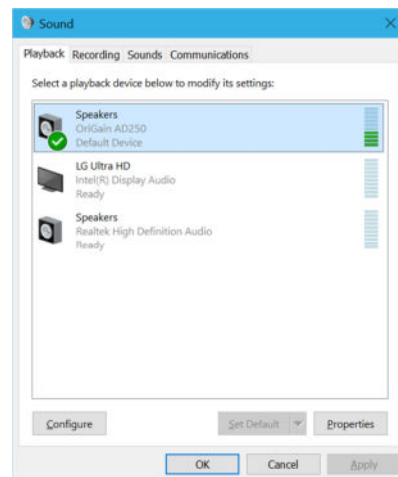
In order for the OriGain to be used for USB audio playback, it must be connected to an available USB port on your computer, and its input selector switches must be set to “Digital” and “USB”, as illustrated below.



5.1 Driver Installation


All modern computer operating systems have built-in drivers for USB Audio Class 1.0 devices like the OriGain. Simply connect the OriGain to an available USB port on the computer, turn it on, and it will be automatically installed.

It is important to confirm that the OriGain has been set as the default playback device. To do this on a Windows computer, right click on the  audio tray icon and select “Playback Devices”. On the playback devices screen find “OriGain AD250”, right click on it and select “Set as Default Device”. Other operating systems will have similar settings for default audio device.




5.2 Driver Installation Troubleshooting

The OriGain is ready for use as soon as the driver installation is complete. The computer should now be playing sounds through the OriGain. If there is no sound, try the following troubleshooting steps:

- Connect the OriGain to a USB jack on the computer. If using a desktop computer, use one of the rear USB jacks. Set the front selector switches to “Digital” and “USB”.
- Right click on the  audio tray icon and select “Playback Devices”. In the “Playback” tab, make sure that “OriGain AD250” is found. If not found, try a different USB cable or a different USB jack.
- Right click on “OriGain AD250” and select “Set as Default Device”. There should now be a green checkmark on this device.
- Connect a pair of speakers to the OriGain, set the volume knob to the 9 o’clock position.
- Open a web browser to your favorite video site and play a video. The audio should play.

Things to try if you encounter errors in any of the above steps:

- Try a different USB cable or USB port on your computer.
- Turn your computer off and back on again. :3
- Make sure that the sound on your computer is not muted. In Windows 7 it is possible to mute a particular application even though the system volume is not muted. To check this, click on the  audio tray icon - all current applications with sound playback capability will be listed individually along with their volume/mute controls.

If after the above steps you still have difficulty getting the OriGain to work with your computer, please contact our support team at support@miccatron.com.

5.3 Advanced Configuration

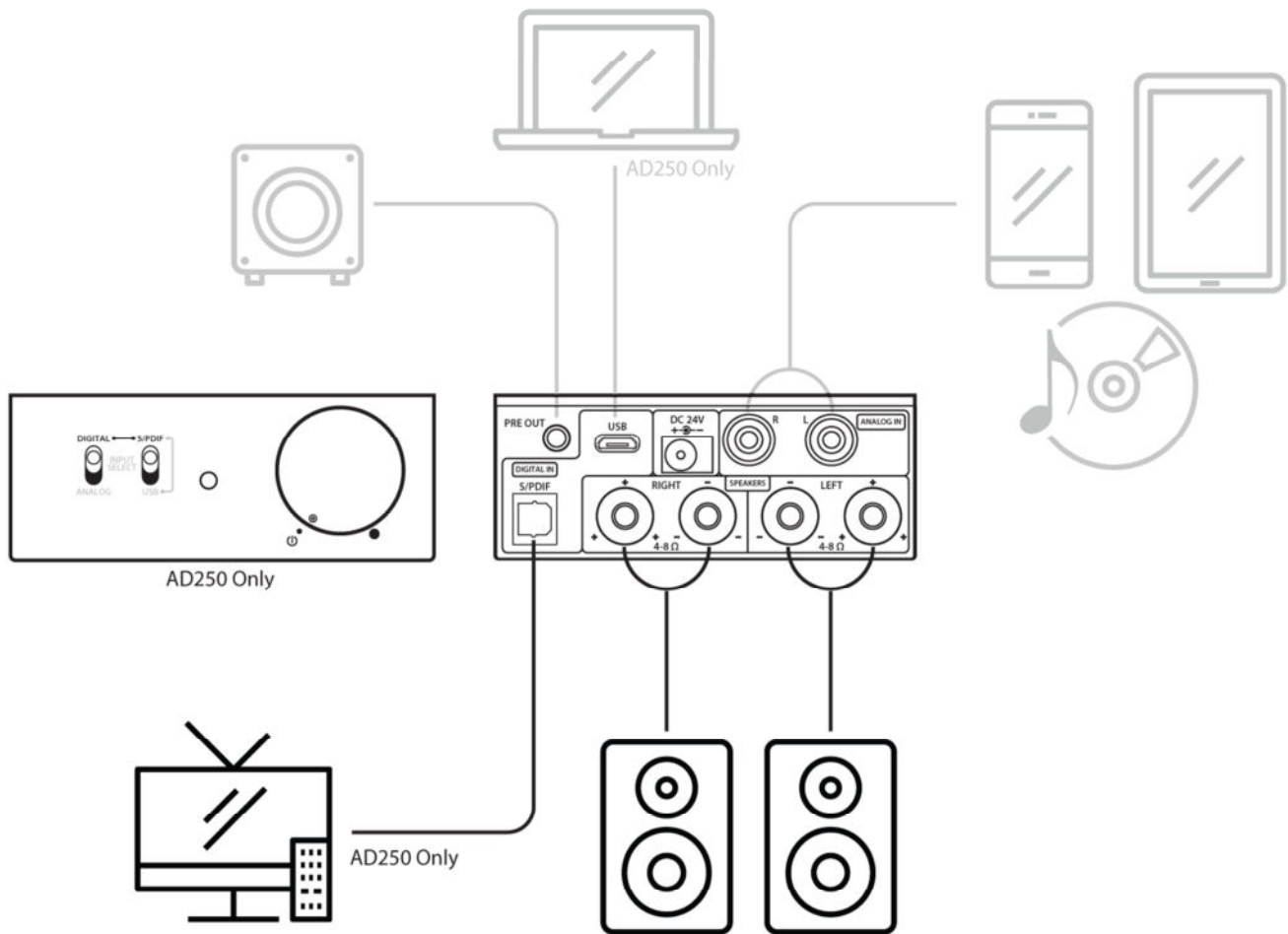
Advanced users may wish to make adjustments to the default operating parameters based on the guidelines in this section.

5.3.1 Playback Device Setting

- From the list of playback devices, right click on “OriGain AD250” and select “Properties”.
- In the Advanced tab, select any Default Format desired, such as 24 bit 96000 Hz.
- Click “Apply” when done.

6 Optical Input Setup (AD250 Only)

The OriGain can play audio from an audio source such as a TV, BD/DVD player, or desktop computer that is equipped with an optical digital audio output jack. To do so, set the front selector switches to “Digital” and “SPDIF”, and connect your sound source to the “DIGITAL IN SPDIF” input jack on the back of the OriGain, as illustrated below. A Toslink optical cable is required and not included.



Here are some helpful recommendations to keep in mind while you use the optical input on the OriGain:

- The OriGain only supports PCM signals and does not support any other sound formats. Please ensure that the source is configured to output PCM over its optical digital output. Most TVs, DVD/BD players provide this configuration, but some may not. If the source sends a non-PCM signal to the OriGain, the resulting sound will be static noise.
- For best sound quality, set the sound source volume to max, and use the volume knob on the OriGain to set the desired listening volume

7 Specification

7.1 General

Power Amp IC:	Texas Instrument TPA3116D2
Channel Imbalance:	< 0.5dB
Analog Input Sensitivity:	0.8 Vrms
Power Source:	24V/5A DC
Dimensions (Main Unit):	5.6 x 1.3 x 3.2 Inch (143mm x 32mm x 82mm)
Weight (Main Unit):	12.3 Oz (350g)

7.2 Digital Section (AD250 Only)

USB Formats:	PCM (44.1/48/88.2/96kHz, 16/24bit)
Optical S/PDIF Formats:	PCM (44.1/48/88.2/96/176.4/192kHz, 16/24bit)
USB Interface:	USB Audio Class 1.0
Audio Controller:	C-MEDIA CM6510B
DAC IC:	Wolfson WM8740

7.3 Speaker Output

Frequency Response:	20Hz ~ 20kHz +1/- 0.5dB
THD+N:	<0.5% (20-20kHz, at rated output)
Signal to Noise Ratio:	>93dB (1kHz, A-wt.)
Output Power:	50W x 2 into 4 Ω , 30W x 2 into 8 Ω
Speaker Impedance:	4 ~ 8 Ω

7.4 Pre Output

Frequency Response:	20Hz ~ 20kHz +/- 0.1dB
THD+N:	<0.01% (1kHz, A-wt.)
Signal to Noise Ratio:	>96dB (1kHz, A-wt.)
Output Voltage:	0.9 Vrms

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