

ARC MK₂ Owner's Manual

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Introduction

Thank you for choosing the Mayflower Electronics ARC MK₂. This combination DAC + Headphone Amplifier is designed to enrich your gaming environment with high fidelity sound, advanced audio processing, and an integrated microphone amplifier with noise filter. The ARC is fully compatible with the PS5, Windows, Mac, and most Linux distributions. In optical input mode it is also compatible with the Xbox.

The Digital-Analog Converter (DAC) in the ARC has been developed based on customer response to our high quality amplifier products. By bypassing your system's lower quality internal DAC and keeping the audio stream digital until the OP-amp, sound quality is enhanced and noise is minimized.

Three input options are provided to ensure compatibility with your gaming system. A USB input provides connectivity to most systems, while an SPDIF optical input allows connection of equipment that is not able to recognize the ARC as an audio device, such as the Xbox. The optical input can also be used to connect the ARC to your home audio equipment. A combination mic out / analog in 3.5mm connector allows connection of phones, mp3 players, etc...

A microphone jack both amplifies and conditions the input signal to ensure the best communication with your team. An analog microphone output can pass the microphone signal to your own mixing equipment for custom audio feeds.

Features

- Combination DAC + Headphone Amp with adjustable digital level control.
- USB 3.0 and optical (TOSLINK) digital inputs.
- RCA pre-outs for powered speaker systems.
- Microphone amp with noise filter and analog output.
- Selectable Dynamic Bass mode.

Improvements Since ARC v1

The USB port now provides power. A separate power supply is no longer necessary for most systems
Microphone quality has been significantly improved.

The headphone jack now accepts 4 pole headset connectors, eliminating the need for a mic / headphone splitter.

A new output selector switch toggles between headphone and RCA outputs.

The rear mic output can now act as a 3.5mm analog input for phones, mp3 players, etc...

The ARC is made in the USA from US and global components.



Safety Precautions

- Listen to headphones at a comfortable level for moderate periods of time to avoid hearing damage.
- Be aware of your surroundings when wearing headphones, as important external sounds may be difficult to hear.
- Use a dry towel to clean. Do not allow the device to come into contact with liquids.

Unpacking + Contents

The ARC MK₂ DAC + Headphone Amp

USB cable

Connections + Controls

Front



- ① DSP Mode Button
- ② DSP Mode LED
- ③ Power LED
- ④ Headphone / RCA Output Selector
- ⑤ Digital Volume Control + Power Switch
- ⑥ Microphone Input (3.5 mm)
- ⑦ Headphone / Headset Connector (3.5mm)

Back



- ⑧ RCA Speaker Pre-outs
- ⑨ Input Selector Switch
- ⑩ Combination Aux In / Mic out
- ⑪ Full-size USB Connector
- ⑫ Output Gain Selector
- ⑬ TOSLINK Optical Connector
- ⑭ 5v DC Power Connector (if needed)

Operation

In most circumstances, the ARC will only need to be connected to an available USB port on your system (a USB 3.0 port is recommended). Refer to the illustrations in the Connections + Controls section to locate the items described below:

1. Ensure that the volume + power knob ⑤ is in the Off position (all the way counter-clockwise).
2. Remove the twist tie from the included USB cable and connect it between your system and the ARC ⑪. Use a USB 3.0 port if available.
3. Connect your headphones or headset to the headset jack ⑦. This jack accepts 4 pole headphone/mic connectors as well as standard headphones.
4. *Optional: Connect your microphone to the mic input jack ⑥.*
5. Power the ARC on by turning the volume + power knob ⑤ clockwise past the point where a click is felt.

Your system should recognize the ARC and begin sending all audio processing through the ARC, bypassing the internal sound card. If your system does not recognize the ARC, see the Troubleshooting section.

6. Put on your headphones and adjust the volume to a comfortable level. The volume knob rotates nearly 360 degrees, and it is normal to turn the volume past 12 O'clock to achieve typical listening levels. If the level is not sufficient, first check your Windows audio volume and ensure it is between 80% - 100%. If audio output is still insufficient, switch the output gain selector ⑫ to the Hi position. For most headphones, the Lo gain setting is adequate.

Note: If no output is heard through the headphones, press the Headphone / RCA Selector ④.

Windows systems will need to have the audio output set to 24/96 mode. See the troubleshooting section for information on changing this setting.

7. *Optional: Test your microphone and adjust the software microphone volume on your system to an optimal level.*

Input Options

In addition to the USB input, source equipment may be connected using a digital TOSLINK connection ⑬. Simply move the input selector switch ⑨ to the OPT setting.

Source equipment such as cell phones or music players may be connected using the analog 3.5mm jack ⑩. In this case, the ARC will automatically switch inputs without the need to change the input selector switch.

Please note: If using the analog port and you're NOT using a 4 pole 3.5mm cable, a CTIA complaint splitter must be used or you may get static or distortion with the analog input.

Speaker Options

A pair of RCA pre-outs ⑧ are supplied to connect powered speakers. Simply use the Output Selector ④ to change outputs from headphone to RCA. When the RCA pre-outs are in use, volume is controlled using your speaker system's volume adjustment.

Sound Mode Options

The Mode button ① allows for the selection of two DSP audio enhancement modes to complement your gaming environment. When the ARC is first powered on, the default mode is selected, which does not alter the sound and the mode LED is turned off.

Pressing the mode button will cycle through the DSP modes, changing the color of the mode LED ②. Continue to press the button until the desired mode is selected:

When the mode LED is blue, Dynamic Bass mode is selected, which evenly and smoothly transitions to a more powerful deep bass response. This mode may improve sound quality depending on your preferences, your headphones, and the quality of the input source.

Microphone Options

The built-in microphone connections provide a sophisticated line filter to eliminate noise, distortion, and clipping. If your teammates are having trouble hearing you, you may need to adjust the microphone volume on your system.

An analog microphone output ⑩ has been provided for connection to custom mixing equipment. This can be useful when capturing a game's video and audio for later viewing, or otherwise creating a custom audio feed (such as a team music play list). Simply use a 4 pole 3.5mm cable (not supplied) to connect to your mixer or podcasting equipment. Please note that the 3.5mm aux port on the MK2 is a 4 pole CTIA compliant port, which you'll need to use a compatible splitter if needing separate analog input and microphone outputs. If you are experiencing audio anomalies like static or distortion, please use a CTIA splitter like this one [here](#).

Connecting the ARC to Your Home Audio System

1. Connect the ARC's optical input ⑬ to your receiver or pre-amp using a TOSLINK cable (not included).
2. Connect the included USB cable to a USB power source, and plug it into the ARC ⑪.
3. Move the input selector switch ⑨ to the OPT position.

Note: If an optical connection is not available on your system, you may use the 3.5mm analog input ⑩ instead. An RCA to 3.5mm adapter cable may be necessary.

PS5 Settings

You may need to adjust your PlayStation audio settings to use the ARC. The ARC connects to the consoles using the included USB cable. Make sure the input selector switch ⑨ is set to the PS position, then perform the following setup on your PS5:

1. Access the "Settings" menu
2. Select "Devices"
3. Select "Audio Devices"
4. Change the Input Device to the ARC if you are using the ARC's microphone input
5. Change the output device to the ARC
6. Test and adjust the microphone level if using the ARC's microphone input

Connecting the ARC to your Xbox One

Refer to Figure 4 in the Troubleshooting section

The Xbox One uses a TOSLINK optical output rather than USB

1. Connect the ARC's optical input (13) to your Xbox using a TOSLINK cable (not included).
2. Connect the included USB cable to a USB power source, and plug it into the ARC (11).
3. Move the input selector switch (9) to the OPT position.

The Xbox One requires a CTIA splitter to use with headphone/mic headsets

1. Connect a CTIA Compliant headphone/microphone splitter to the Xbox controller (see equipment list below).
2. Connect the splitter's MIC jack to the microphone connector on your headset. You may need an extension cable to make this connection.
3. Plug the headphone jack from your headset into the headphone jack (7) of the ARC.

Setting Xbox to output audio to the ARC

1. Open the guide (scroll left from Home)
2. Select "Settings"
3. Select "All Settings"
4. Select "Display & Sound"
5. Select "Audio Output"
6. Under "Speaker audio", select Optical audio and change the setting to "Bitstream Out".

Note: The ARC can only decode uncompressed stereo.

Setting Xbox to output chat to the ARC

1. Open the guide (scroll left from Home)
2. Select "Settings"
3. Select "All Settings"
4. Select "Display & Sound"
5. Select "Volume"
6. Select "Party chat output"
7. Select "Speakers"

Headset volume and mic monitoring can be adjusted as necessary so that you can hear the voice chat as well as yourself. These settings are adjusted from Settings...Devices & accessories, then select your controller and modify the audio settings.

Equipment List for Xbox Connection

[CTIA Compliant splitter](https://amzn.to/2Dfv7wX) TOSLINK optical cable: <https://amzn.to/2Dfv7wX>

Troubleshooting

- The ARC does not power on, or cuts out during use:

It's possible that your USB port does not provide sufficient power to the ARC. If you are unable to find a sufficient USB port to power the ARC, contact support to request a power supply. You can contact Mayflower support at CS@Mayflowerelectronics.com or via telephone at 518-620-6648.

- There is no sound output to the headphones or speakers:

The input selector switch ⑨ may be set to the wrong input source. Change the position of the switch to see if normal output resumes.

Disconnect and reconnect the USB cable to reinitialize the USB audio driver ⑪.

Check to see that the volume switch is turned on and set to a reasonable volume ⑤.

Your system's audio format may be set to an incompatible format. Check your speaker properties to set the format to "24 bit, 96000 Hz" if available. You may need to restart your system after changing this setting (See Figure 1).

Your system may be set to use the built-in sound device instead of the ARC. Check your device manager's sound properties to ensure the ARC is set as the default audio device (See Figure 2).

- The speakers do not produce any sound, or the sound is barely audible:

Windows system volume will need to be set at or above 80% to ensure full volume range from the ARC.

The ARC only allows the connection of powered speakers. If your speakers are not self-powered or the speaker power is turned off, you will not have sufficient volume. Use the volume control on your speaker system to set the volume to an appropriate level.

- The ARC doesn't seem to work with my Xbox or other system:

Try to use a USB 3.0 port if available. If it still doesn't work, it's possible that your system's USB connection is not able to recognize the ARC as an audio device. In this case you will need to use the optical TOSLINK connection ⑬ instead. Be sure to move the input selector switch ⑨ to the OPT position if using the TOSLINK connection.

Troubleshooting (continued)

- The microphone volume is either too quiet or too loud:

The microphone's volume may be adjusted using your system's software (See Figure 3).

- Sound output is lost periodically during game play:

Your system may be set to output 5.1 channel audio rather than 2-channel audio. Try adjusting your system's audio output to 2-channel mode.

Your USB port may not deliver sufficient power to the ARC. Try another USB port or contact support to request a power supply. You can contact Mayflower support at CS@Mayflowerelectronics.com or via telephone at 518-620-6648.

- I can't hear anything while using the optical input:

The ARC can only decode certain audio formats. These include stereo uncompressed, or linear PCM.

- The ARC buzzes or hums when touched:

The ARC relies on a physical ground via USB to whatever device is connected. If your device or connected devices (IE gaming console to TV) does not have a grounded power plug (3 prong wall connector) you may hear buzzing when the amplifier is touched. If using a computer tower, laptop or gaming console plugged into a grounded TV or monitor, this will not be an issue.

- If you encounter a problem not listed here, or are unable to solve your issue with the information in this manual, please contact Mayflower Electronics at CS@Mayflowerelectronics.com or via telephone at 518-620-6648.

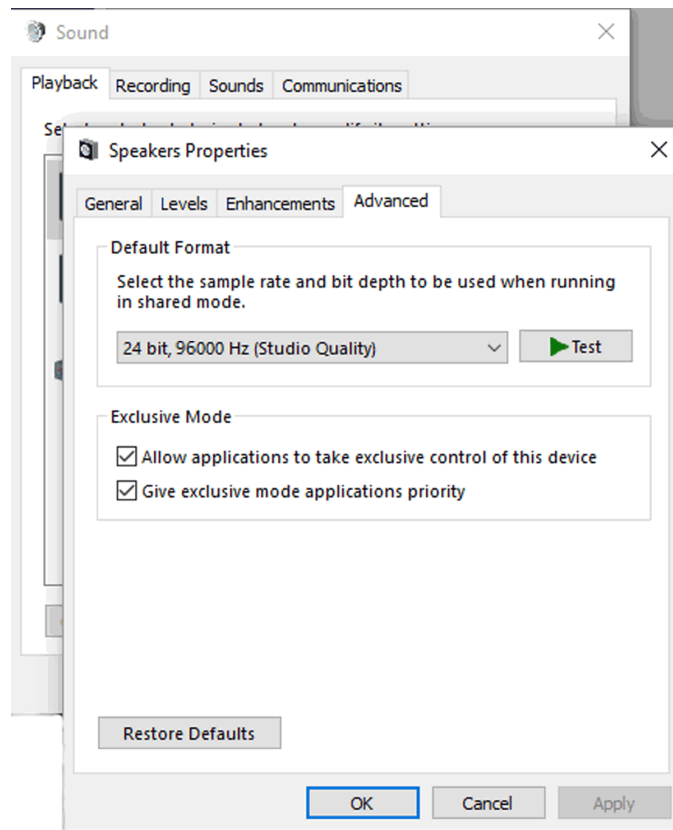


Figure 1: Selecting a compatible format.

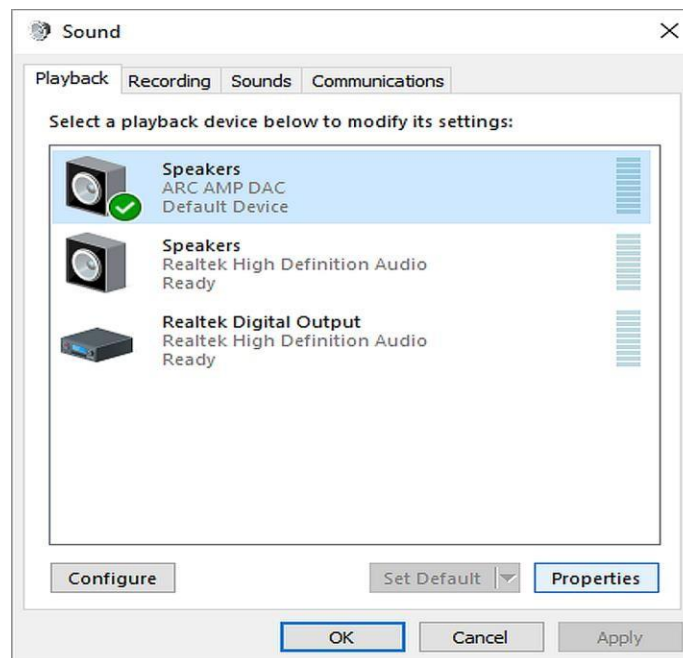


Figure 2: Setting the ARC as default audio device.

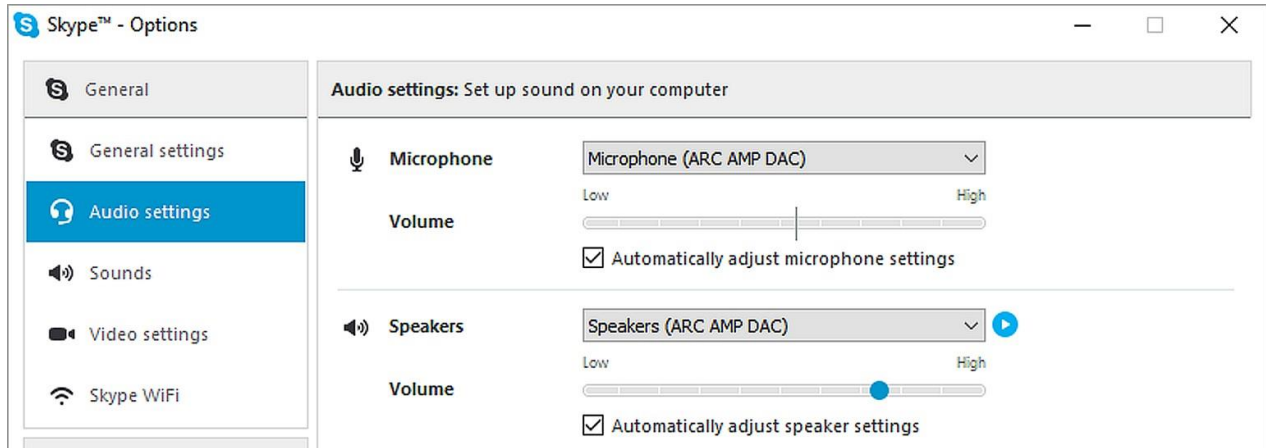


Figure 3: Typical software microphone adjustment.

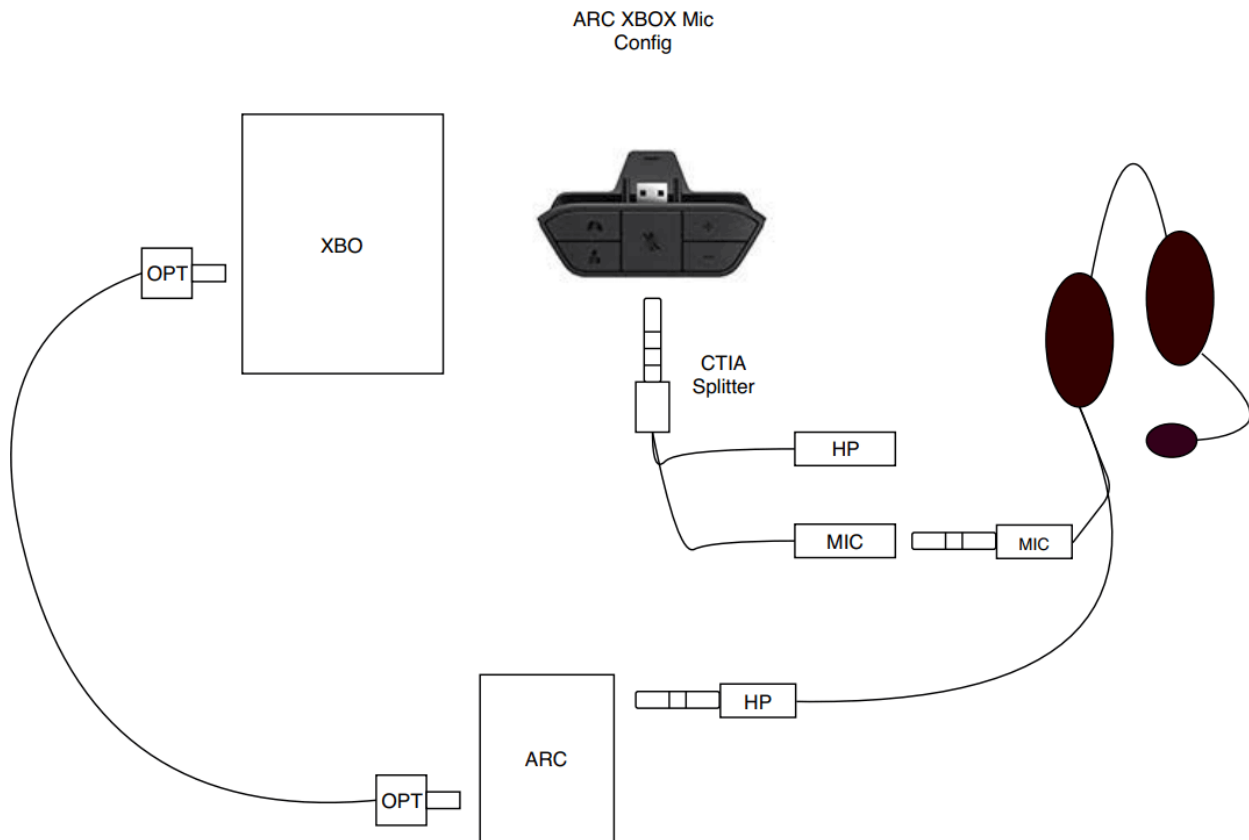


Figure 4: Xbox Connections

Warranty

The ARC is warranted against material and workmanship defects for a period of 10 years from the date of purchase. Mayflower Electronics may elect to repair or replace this product at their option. Retain your invoice or order number as proof of purchase and provide your order number in any warranty communication to Mayflower Electronics.

This warranty is only in effect if product is purchased directly from Mayflower Electronics or from an authorized retailer. Warranty is not valid if serial number has been removed or otherwise altered.

Cosmetic damage is not covered during the warranty period. Opening the case or making other modifications will also void the warranty.

Specifications

- Frequency Response: +/-0.05 dB (20Hz-20kHz)
- THD 1 Khz 150 Ohms: 0.0026%
- IMD CCIF 15 Ohms: 0.0007%
- IMD SMPTE: 0.001%
- Noise 24/96 (A Weighted): -109 dBu
- Max Output (32 Ohms) : 1W (THD+N < 0.003%)
- Max Output (150 Ohms): 365 mW (THD+N < 0.003%)
- Max Output (600 Ohms): 92 mW (THD+N < 0.003%)
- Output Impedance: 0.096 ohms
- Crosstalk (15 ohms) : -65 dB
- Channel Balance (50% volume): 0.2 dB
- Dynamic Range (A-Weighted): > 120 dB
- Linearity Error: -90 dBFS 24/96 -0.1 dB
- USB Jitter Components: 11025Hz -112dB
- RCA Line out: 1V RMS

Audio formats

- USB: 24/96, 24/48
- Optical: 24/192, 24/96, 24/48, 24/44.1, 16/192, 16/96, 16/48, 16/44.1

Dimensions

- 4.25" W x 3.25" L x 1.25" H
- Weight: 8.5 oz.

* specifications subject to change based on manufacturing updates.

