

BG-AMP2X20

**40 Watt Compact Stereo/Mono 2-Channel Audio Amplifier
with 3 Inputs**

User Manual







TABLE OF CONTENTS

Statement	4
Safety Precaution	4
Introduction	5
Features	5
Packing List	5
Technical Specifications	6
Operation Controls and Functions	7
Operation of the Control Panel and the IR Remote	11
Communication Protocol and Command Codes	13
Troubleshooting & Maintenance	14
Application Example	15
Tech Support	16
Limited Product Warranty Terms	16
Mission Statement	16
Copyright	16



Statement

Please read these instructions carefully before connecting, operating, or configuring this product. Please save this manual for future reference.

Safety Precaution

- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.
- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.
- Do not expose the product to rain or moisture.
- Unplug this device during lightning storms
- Clean only with a soft dry microfiber cloth.
- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.
- Do not use the product beyond the specified temperature, humidity, or power supply specifications.
- This product does not contain parts that can be maintained or repaired by users. Damage caused by dismantling the product without authorization from BZBGear is not covered under the warranty policy.
- Installation and use of this product must strictly comply with local electrical safety standards.
- Only use accessories specified by the manufacture
- Product specifications may be subject to technical upgrades without further notice
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not hot plug when it is working.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.



Introduction

The BG-AMP2X20 is a compact-size digital amplifier (Class-D) with 3 inputs (2 line in and 1 balanced MIC). It has integrated functions including bridge connection, dual-mono, EQ control, microphone mixer etc.

It has a good application in different places, including classroom, small meeting room, lecture hall, bar, pub etc.

Features

- Default amplifier output: 2x20 Watt @4Ohm.
- Bridge connection function: Users can switch to a 1x40Watt@8Ohm bridge connection.
- Two stereo audio inputs, switchable by button, IR remote, & RS232.
- Volume/Bass/Treble controllable by buttons, IR remote, & RS232.
- The MIC port can support balanced/unbalanced signals and suppress external noise.
- Line audio output at 3.5mm jack, with volume controllable.
- Dual-mono function: Users can sum up the stereo audio to two times mono audio.
- MIC mixer function: The microphone will be mixed to the line audio output and controlled separately.
- MIC input supports 48V phantom power, dynamic MIC and wireless MIC.
- Auto noise gate will keep detecting the audio and MIC input and will mute the output when there is no input.
- Ultra low inrush current, no need for power sequencing. This allows multiple units to be powered on simultaneously without overloading power circuits.
- Convection cooler, fan is not needed.
- Antistatic case design: providing good protection for long-term and stable performance.

Packing List

- | | |
|--------------------------------|------------------------|
| • 1x Mini Digital Amplifier | • 1x Power Cord |
| • 2x Pluggable Terminal Blocks | • 4x Plastic Cushions |
| • 1x RS232 Cable | • 1x User Manual |
| • 1x Power Adapter | • 1x Quick Start Guide |



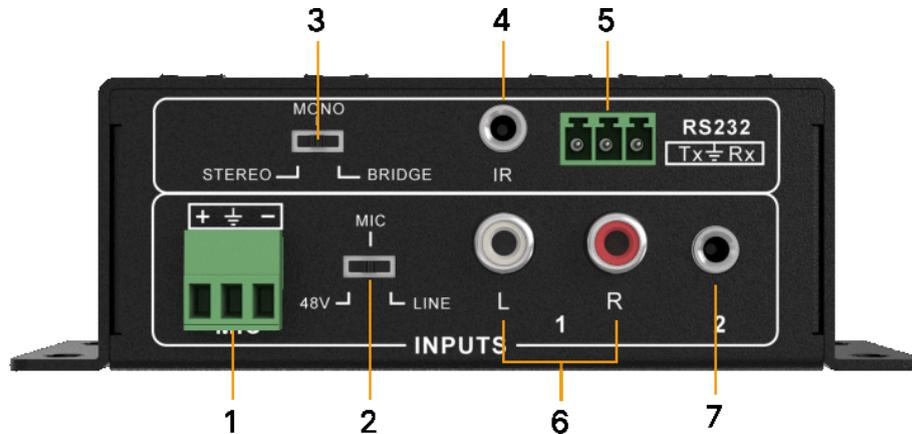
Technical Specifications

Audio Input		Audio Output	
Input	2 stereo audio, 1 MIC	Output	1 amplifier, 1 stereo audio
Input Connector	2 RCA 1 3.5mm jack 1 pluggable terminal block (3P, 3.81mm)	Output Connector	1 3.5mm jack 1 pluggable terminal block (4P, 5.08mm)
Input Impedance	>10K Ω	Output Impedance	50 Ω /stereo, 4~8 Ω /Amplifier
Audio General			
Frequency Response	20Hz ~ 20KHz	CMRR	>70dB@20Hz~20KHz
SNR	80dB at maximum output	Bandwidth	20Hz ~ 25KHz
Stereo Channel Separation	>75dB@20Hz to 20KHz	THD + Noise	1%@1KHz, 0.3%@20KHz at nominal level
Voltage Gain	32dB	Power Output	2x20 Watts (4 Ohms)
Control Function			
RS232 Control	3-hole phoenix connector	Panel Control	Optional button control
IR Remote	Optional IR remote		



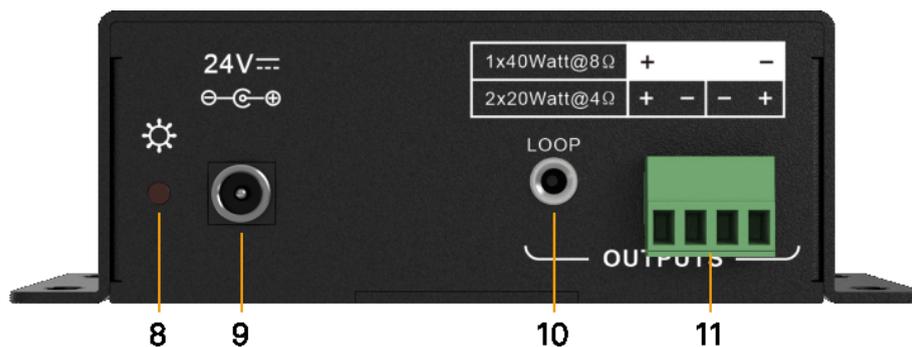
Operation Controls and Functions

Front Panel



1. **Mic:** Balanced Mic In.
2. **48V/Mic/Line:** Input mode 48V/Mic/Line.
3. **Stereo/Mono/Bridge:** Output mode Stereo/Mono/Bridge.
4. **IR:** IR Receiver.
5. **RS232:** 3-pin phoenix connector
6. **Input 1 L/R:** L/R Audio RCA Line In 1.
7. **Input 2 L/R:** L/R Audio 3.5mm Line In 2.

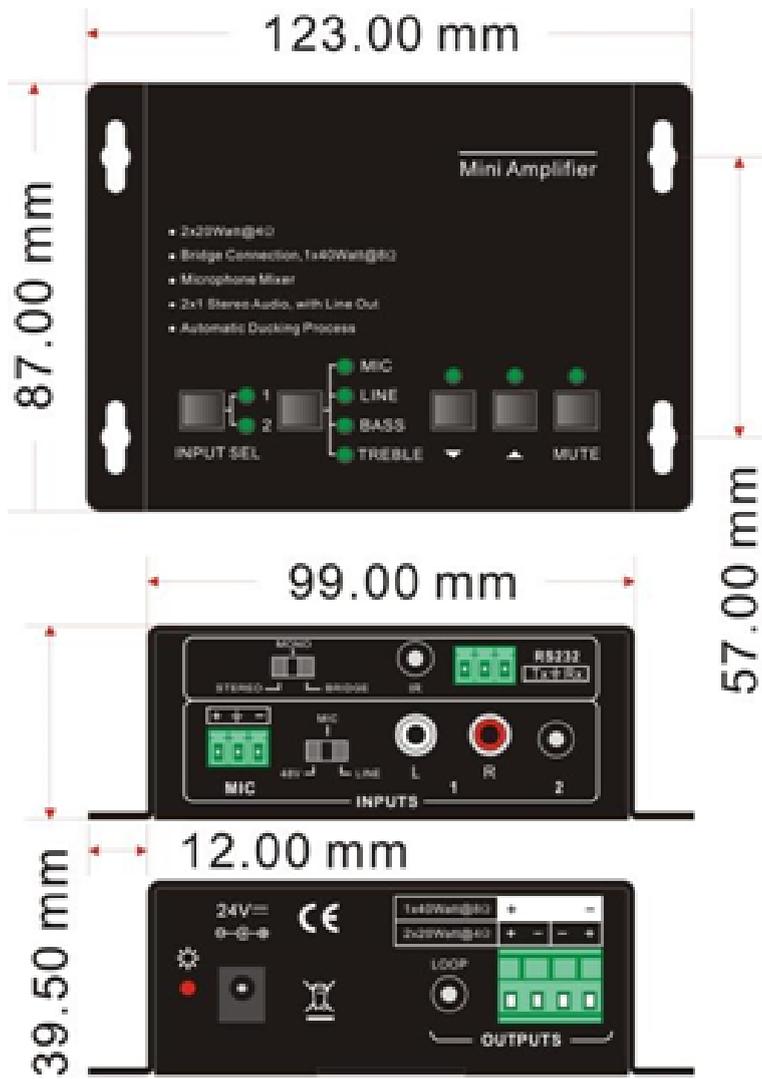
Rear Panel



8. **Power LED:** Illuminates when power is connected
9. **Power DC 24V:** Connect to the provided power adapter.
10. **Loop Out:** Line audio output at 3.5mm jack, with volume controllable.
11. **Out:** 2x20 Watt @ 4 Ohm / 1x40 Watt @ 8 Ohm Out.



Panel Drawing

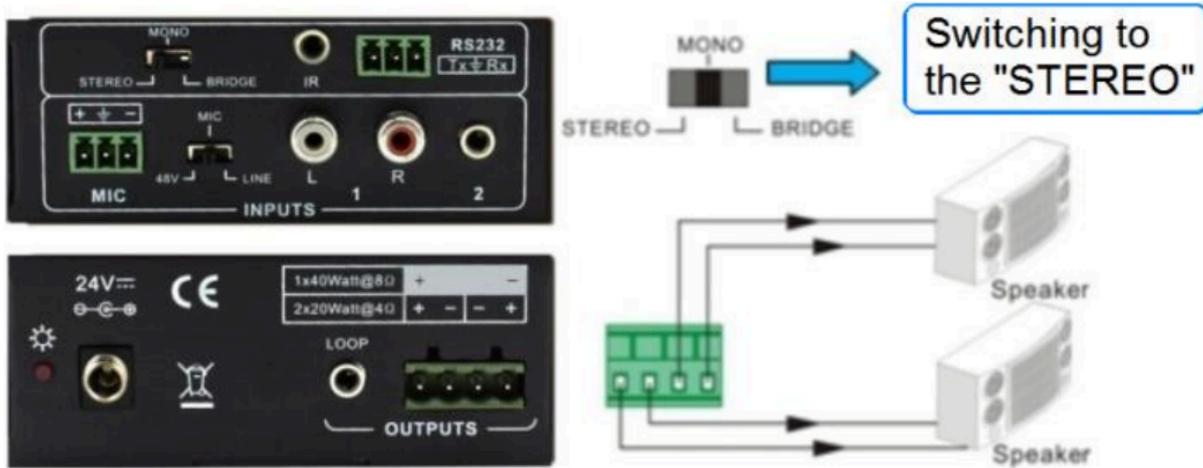




Audio Output

- **Default output:** 2x20Watt@4 Ohm

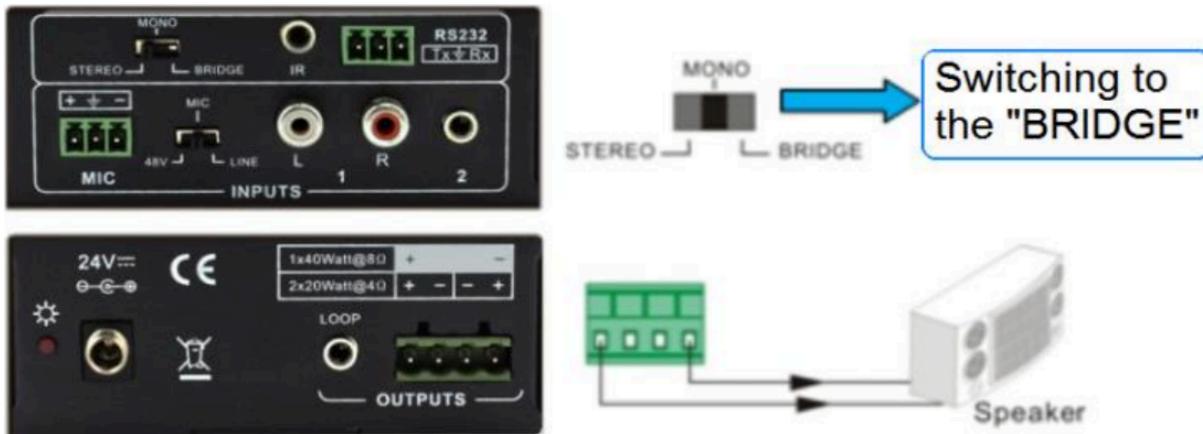
The default output of the amplifier is 2x20 Watt@4 Ohm, as shown in the picture below:



Connect the four output pins as shown above:

- **Bridge connection:** 1x40 Watt@8 Ohm

The BG-AMP2X20 has the ability to create a bridge connection which doubles the output power at 1x40 Watt@8 Ohm. It will sum up the left and right input channels to be a mono signal with a power output of 40 Watts.

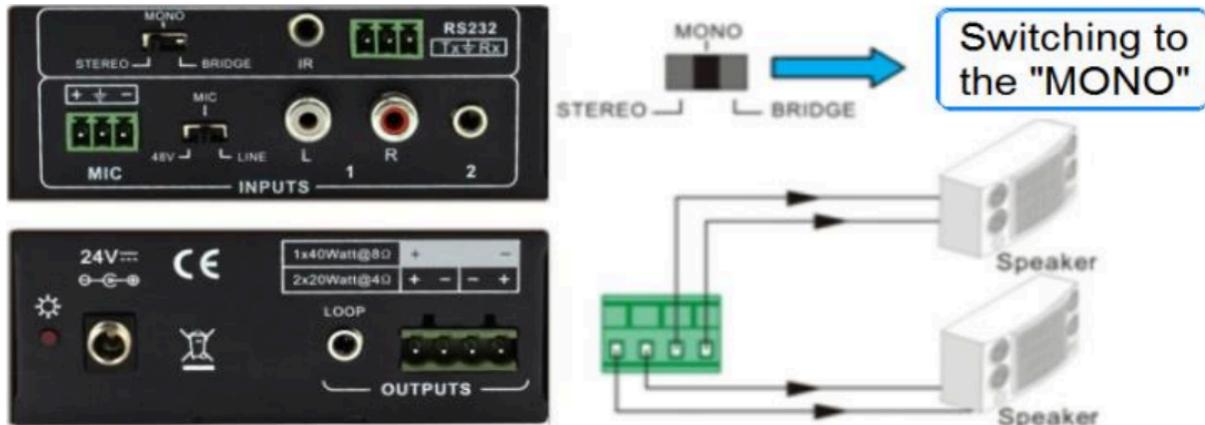


Connect two of the output pins as shown above:



• Dual-mono Output

The BG-AMP2X20 can also function in a double-mono output mode. It can sum up the left and right channels, to be a mono audio output. In this configuration both of the outputs are outputting the same mono audio signal.



Connecting the four output pins as shown above:

Microphone input

The microphone input of BG-AM2X20 has three modes and each different mode uses a different connections, as shown in the picture below:



• 48V phantom power input

When the switch is set to “48V”, the MIC input will provide a 48V phantom power. This is usually used as a power supply for condenser microphones. The connection is: “+” connects to positive, “-” connects to negative, and “⊥” to ground.

Note: In this mode, only a condenser style microphone can be connected.

• MIC input

When the switch is set to “MIC”, the microphone input is used for connecting a dynamic microphone. There are two different connection methods:

- 1) Unbalanced connection:
 - “⊥” connects to ground, and “-” connects to signal.
 - “⊥” connects to ground, and “+” connects to signal.
- 2) Balanced connection: “+” connects to positive, “-” connects to negative, and “⊥” connects to ground.



- **LINE input**

When the switch is set to “LINE”, the microphone input is used to connect a normal audio or wireless microphone output. There are two different connection methods:

- 1) Unbalanced connection:

“⊥” connects to ground, and “-” connects to signal.

“⊥” connects to ground, and “+” connects to signal.

- 2) Balanced connection: “+” connects to positive, “-” connects to negative, and “⊥” connects to ground.

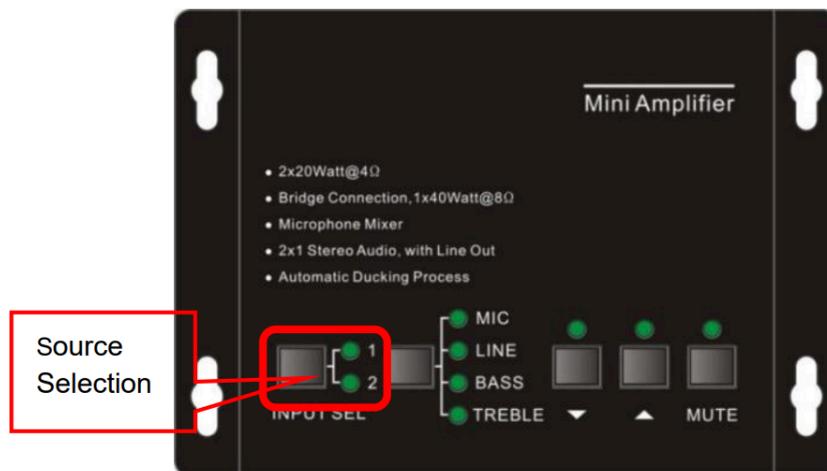
Operation of the Control Panel and the IR Remote

Operation of the Control Panel

The buttons provide the control of volume/EQ control and switching. The following content introduces audio switching and EQ control in detail.

- **Audio switching**

There are two switchable stereo audio inputs, one L/R RCA and one 3.5mm stereo mini jack input, switchable through the buttons as shown below:



- **Volume/EQ controlling**

The line volume and MIC volume can be controlled by the buttons. The MIC Volume/LINE volume/LINE bass/LINE treble is selected by pressing the button. Volume is controlled by pressing the up/down/mute function buttons.



Usage of the IR Remote

Audio Inputs
1: RCA dual-mono audio inputs
2: 3.5mm jack

Use to transmit the infrared signal send by the IR remote.

Audio Controlling Modes
MIC: turn up/down the microphone volume.
LINE: turn up/down the line volume.
BASS: bass tuning
TREBLE: treble of line volume.

Mute Mode:
MIC: Mute the microphone volume.
LINE: Mute the line volume.
SPEAKER: Unmute

IR receiver head, works in conjunction with the IR remote. Please point the IR remote at the IR receiver when use, to avoid getting out of control as there is no signal detected.

3.5mm jack, insert it into the specialized socket (3.5mm) to connect the IR receiver with the amplifier

Notice: The IR remote, the IR receiver, and the battery of the IR remote are all offered for charge.



Communication Protocol and Command Codes

Communication Protocol: RS232 Communication Protocol

Baud rate: 9600 Data bit: 8 Stop bit: 1 Parity bit: none

Command	Function Description	Feedback Code
1A1.	Switching the audio to input 1	A: 1 -> 1
2A1.	Switching the audio to input 2	A: 2 -> 1
0A0.	Mute Audio of MIC and Line out	Mute
1A0.	Mute audio of MIC	Mute MIC
2A0.	Mute audio of line out	Mute LIN
0A1.	Unmute Audio	Unmute
3A0.	Switch on Noise Gate	Gate On
4A0.	Switch off Noise Gate	Gate Off
600%	Checking the working status	A: 1 -> 1 Volume: 30 Bass: 00 Treble: 00
601%	MIC volume up	Volume of MIC: 51
602%	MIC volume down	Volume of MIC: 51
603%	Line volume up	Volume of LINE: 51
604%	Line volume down	Volume of LINE: 51
605%	Bass level up	Bass of LINE: 04
606%	Bass level down	Bass of LINE: 04
607%	Treble level up	Treble of LINE: 04
608%	Treble level down	Treble of LINE: 04
609%	Initialization, back to the default setting	Init OK
5[x][x]%	Preset MIC volume, [xx] arranges from [00] to [60]. 61 degrees in total.	Volume of MIC: 50
7[x][x]%	Preset line volume, [xx] arranges from [00] to [60]. 61 degrees in total.	Volume of LINE: 50
8[x][x]%	Preset the bass level, [xx] arranges from [00] to [08]. 9 degrees in total.	Bass of LINE: 04
9[x][x]%	Preset the treble level, [xx] arranges from [00] to [08]. 9 degrees in total.	Treble of LINE: 04

Notice:

1. The letter inside bracket [] is the variable code, which is changeable.
2. The bracket [] is not included in the RS232 commands.
3. Any dot "." after the letters is part of the commands.

Example 1:

Switching input 2 to the line out, RS232 command is: [2A1.]

Example 2:

Turning up the volume of line audio, RS232 command is: [603%]



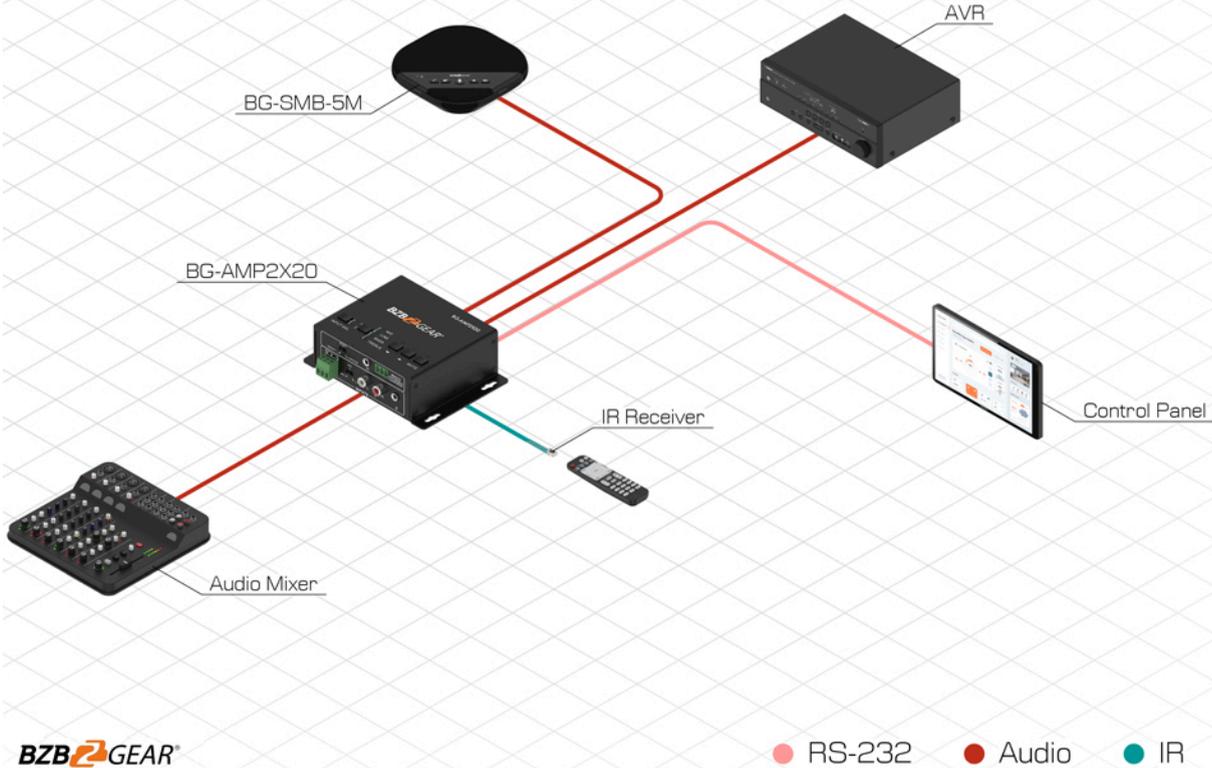
Troubleshooting & Maintenance

- 1) There is no audio output:
 - a) Check if there is any signal at the input.
 - b) Check if there is any signal at the output.
 - c) Check these by using an oscilloscope or a multimeter. If there is no input/output signal check if the input/output cables are broken or the connectors are loose.
 - d) Check if the output port number is the same with the one selected.
- 2) There is no power.
 - a) Check to ensure that the power adapter is properly connected to the unit and to a power source.
- 3) Sound is distorted.
 - a) Ensure that the system is properly grounded.
- 4) Static becomes stronger when connecting the audio connectors.
 - a) Check for a bad ground/loose connection.



Application Example

BG-AMP2X20
Connection Diagram



● RS-232 ● Audio ● IR



Tech Support

Have technical questions? We may have answered them already!

Please visit BZBGear's support page (bzbgear.com/support) for helpful information and tips regarding our products. Here you will find our Knowledge Base (bzbgear.com/knowledge-base) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV (youtube.com/c/BZBTVchannel), for help setting up, configuring, and other helpful how-to videos about our gear.

Need more in-depth support? Connect with one of our technical specialists directly:

<u>Phone</u>	<u>Email</u>	<u>Live Chat</u>
1.888.499.9906	support@bzbgear.com	bzbgear.com

Limited Product Warranty Terms

Pro Line: 5-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Essential Line: 3-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Cables: Lifetime Limited Product Warranty.

For complete warranty information, please visit bzbgear.com/warranty.

For questions, please call 1.888.499.9906 or email support@bzbgear.com.

Mission Statement

BZBGear is a breakthrough manufacturer of high-quality, innovative audiovisual equipment ranging from AVoIP, professional broadcasting, conferencing, home theater, to live streaming solutions. We pride ourselves on unparalleled customer support and services. Our team offers system design consultation, and highly reviewed technical support for all the products in our catalog. BZBGear delivers quality products designed with users in mind.

Copyright

All the contents in this manual and its copyright are owned by BZBGear. No one is allowed to imitate, copy, or translate this manual without BZBGear's permission. This manual contains no guarantee, standpoint expression or other implies in any form. Product specification and information in this manual is for reference only and subject to change without notice.

All rights reserved. No reproducing is allowed without acknowledgement.