KanexPro™

AP2DBL
Audio Amplifier with Mic Mixer

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1. Introduction

The KanexPro Mini Audio Amplifier is a quarter-rack width digital amplifier (Class D) with equalizer control and Mic mixer. It's a simple yet powerful device delivering 2x20 Watts@4Ohm default output with built-in volume/ bass feature. It also supports dual mono-output with 2 stereo audio selectable inputs. The Microphone mixer includes independent volume control with balance switching. Supports balanced/ unbalanced signals.

This Mini Audio Amplifier is mainly used during lectures, house of worship centers and various musical events where Mic mixing together with equalizing audio is critical.

2. Features

- Fast switching audio amplifier
- 2x20 Watt@4Ohm as the default amplifier output
- Bridge connection supported by switching the amplifier to be 1x40Watt@8Ohm
- Supports Dual-mono output
- Built-in Microphone mixer (separately controllable)
- Line audio output, with volume controllable.
- MIC input supports 48V phantom power
- MIC port with balanced switching suppress
- Supports balanced/ unbalanced signals
- Supports Ducking power technology
- Ultra low inrush current
- Two stereo audio inputs, switchable by button, remote or RS232.
- Volume/Bass/Treble controllable by buttons or RS232
- Optional control by IR remote
- Convection cooled, antistatic case design
- LED indicator, for power and operating status
- IR remote (optional) not included
- Internal Universal power adaptable (100-240 volt AC, 50/60Hz)

3. Specification

Audio Input		**Audio Output**	
Input	2xstereo audio, 1xMIC	Output	1xamplifier, 1xstereo audio
Input Connector	2xRCA 1x3.5mm jack 1xcaptive screw connector,	Output Connector	1xcaptivescrew connector 1x3.5mm jack
Input Impedance	>10KΩ	Output Impedance	50Ω/stereo, 4~8Ω/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	RS-232, 9-pin female D connector	Pin Configurations	2 = TX, 3 = RX, 5 = GND
IR Remote	Optional IR remote		
TCP/IP Control	TCP/IP controlled		

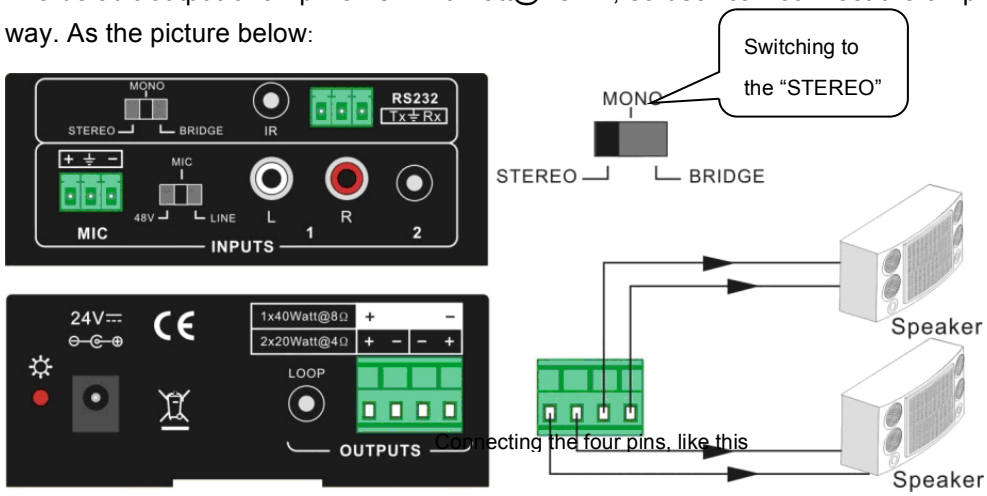
NOTE: All nominal levels are at ±10%.

4. Audio Connection

4.1 Audio Output

4.1.1 Default output: 2x20Watt@4Ohm

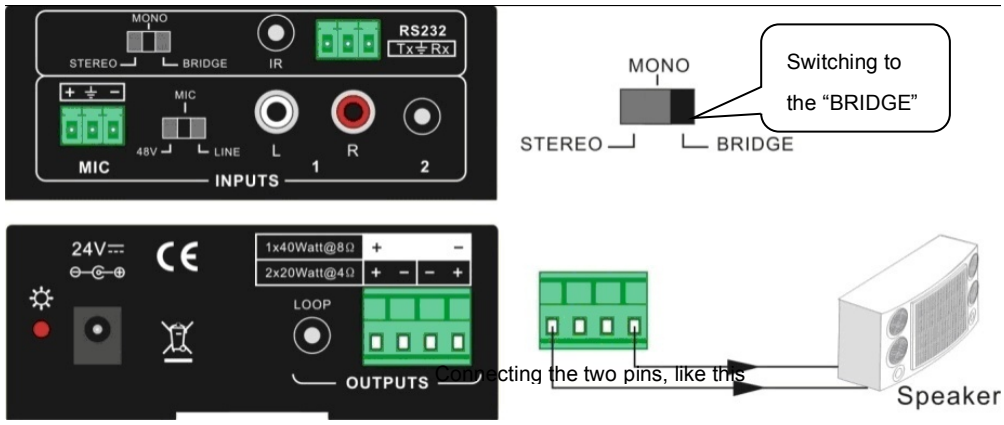
The default output of amplifier is 2x20Watt@4Ohm, so user can connect the amplifier output in the regular way. As the picture below:



4.1.2 Bridge connection: 1x40Watt@8Ohm

The AP2DBL has the bridge connection, to double the output power at 1x40Watt@8Ohm. It will sum up the input left channel and input right channel to be mono output, and the power is up to 40Watt.

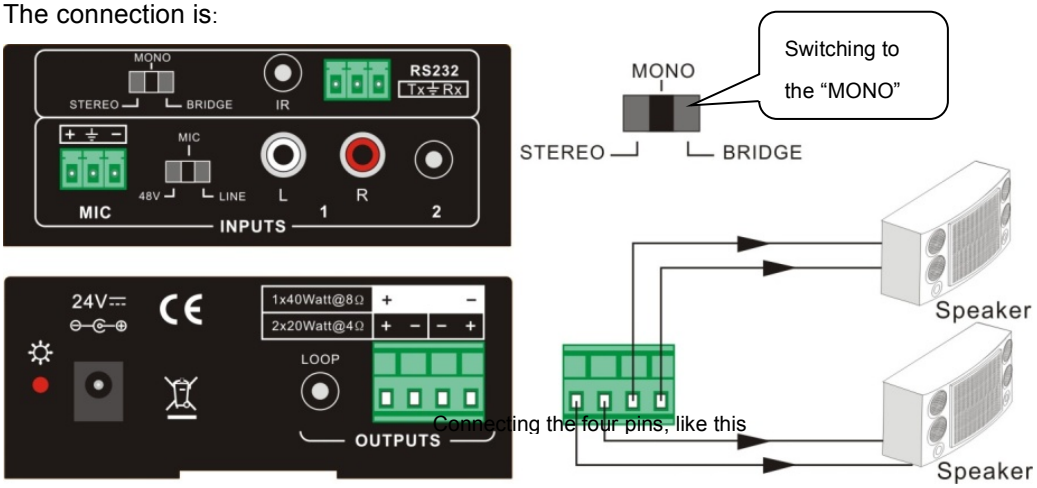
The bridge connection is:



4.1.3 Dual-mono output:

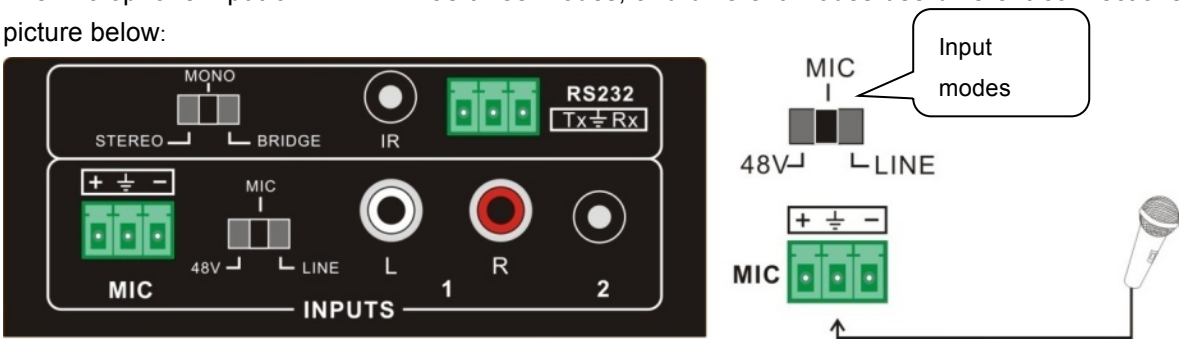
The AP2DBL also has the function of double-mono output. It can sum up the left and right channel, to be the mono audio output. In this way, the both of the outputs are showing the same mono audio.

The connection is:



4.2 Microphone input

The microphone input of AP2DBL has three modes, and different modes use different connections, as the picture below:



4.2.1 48V phantom power input

When the switch turns to “48V”, the MIC input will provide a 48V phantom power. This is usually used for power supply for condenser microphone, Connection is:

“+” Connects to positive, “-” connects to negative and “⏚” to ground.

NOTE: In this mode, only a condenser microphone can be connected to it.

4.2.2 MIC input

When the switch turns to “MIC”, the microphone input is used for connecting with dynamic microphone. There are two different connections:

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

4.2.3 LINE input

When the switch turns to “LINE”, the microphone input is used for connecting with normal audio or wireless microphone output. There are two different connections:

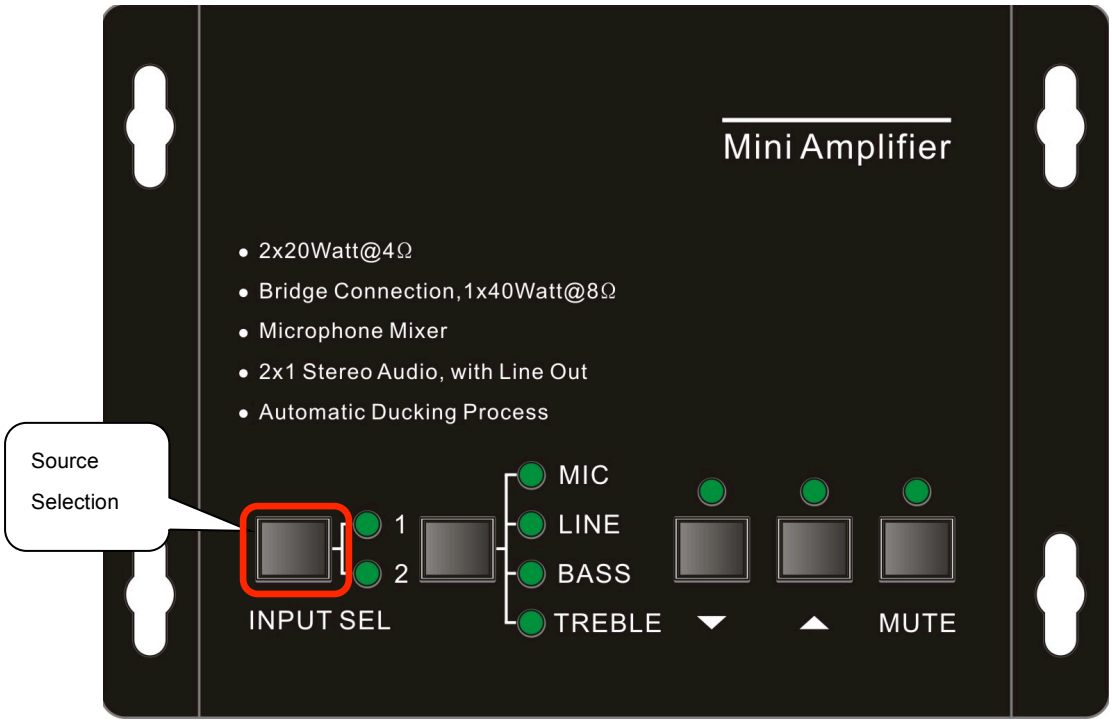
1) Unbalanced connection:
   a) “⏚” connects to ground, and “-” connects to signal.
   b) “⏚” connects to ground, and “+” connects to signal.
2) Balanced connection: “+” connects to positive, “-” connects to negative and “⏚” connects to ground.

5. Buttons Control

The buttons provides the control of volume/EQ control and switching.

5.1 Audio switching

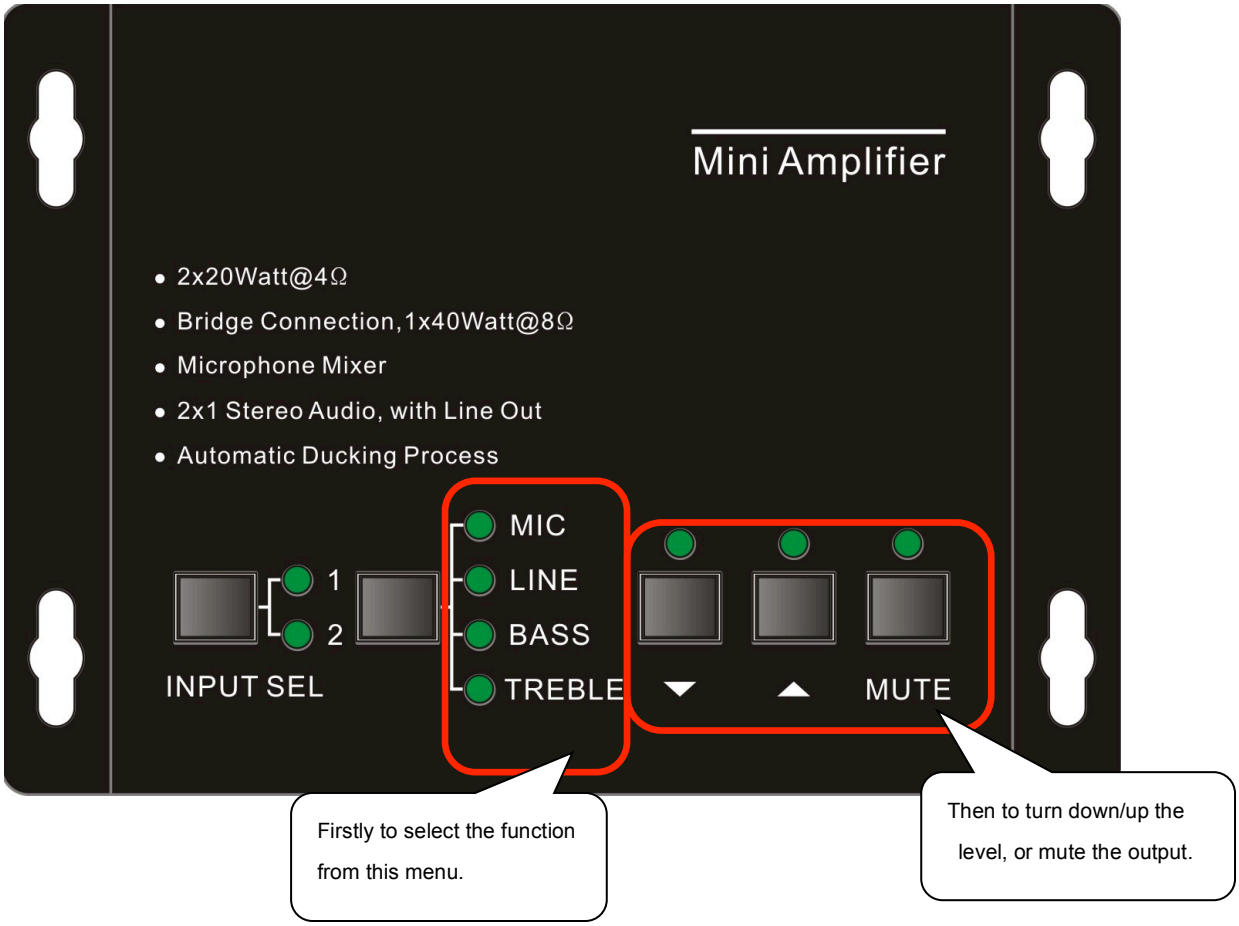
There are two switchable stereo audio inputs, one 2xRCA input, and one 3.5mm jack input, switchable through the buttons as below:



5.2 Volume/EQ controlling

The buttons can control the line volume and MIC volume.

The buttons, and controlled up/down/mute will select the MIC Volume/LINE bass/LINE treble by the function buttons. Please check the picture below:



For example, to turn up the line volume, you should select the “LINE” first, and then press the button “ ▲ ”.

6. 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 Audio
1A0.	Mute audio of MIC	Mute MIC
2A0.	Mute audio of line out	Mute LIN
0A1.	Unmute Audio	Unmute Audio
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	A: 1 -> 1 Volume: 50 Bass: 04 Treble: 04

Command	Function Description	Feedback Code
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 the changeable.

2: The bracket [ ] is not included to the RS232 commands.

3: Any dot "." after the letters is part of the commands.

Example 1:

Switching the input 2 to the line out. We should send the RS232 command: [**2A1.**]

Example 2:

Turning up the volume of line audio. We should send the RS232 command: [**603%**]

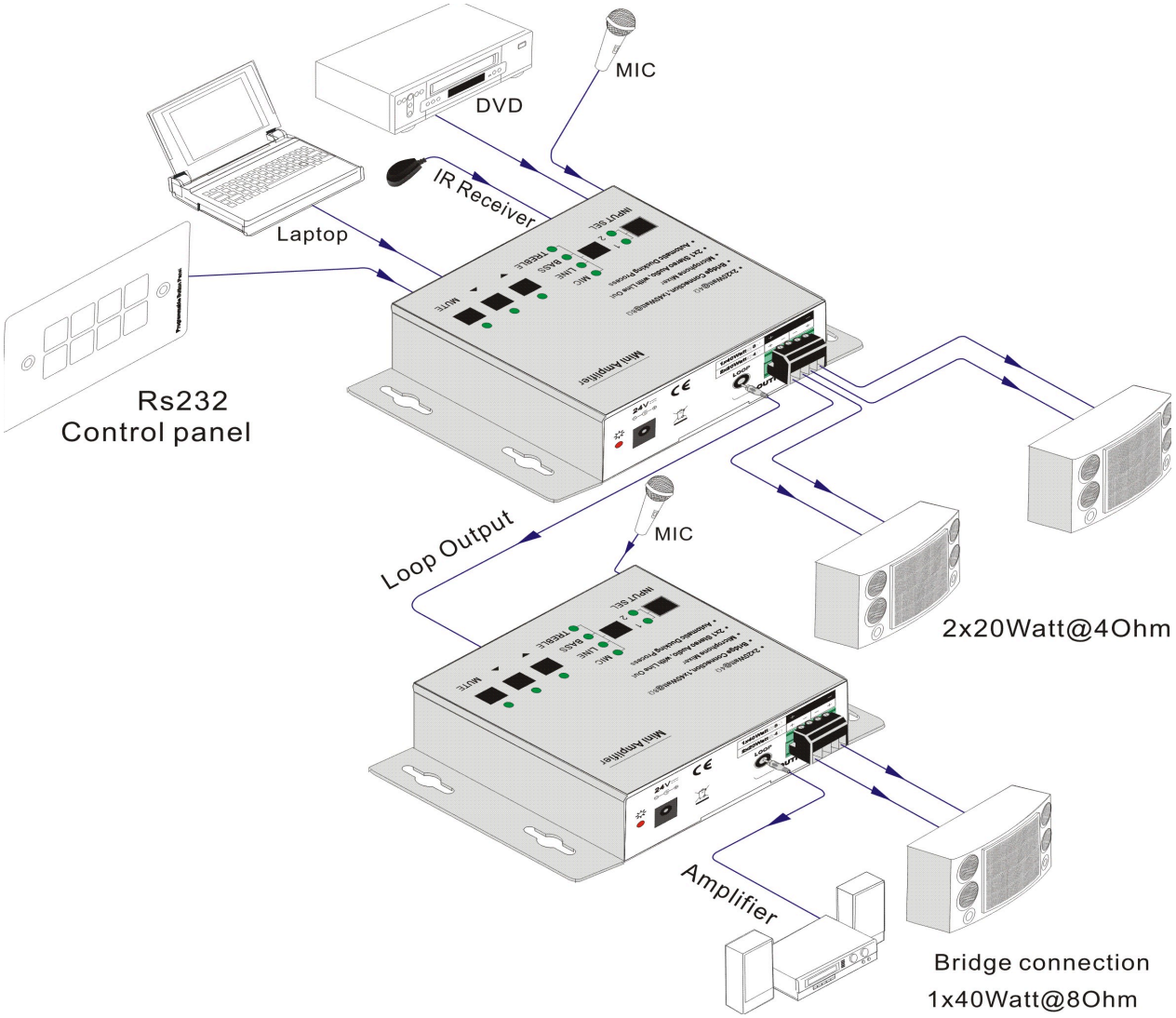
Example 3:

Preset the MIC volume to "21" degree. We should send the RS232 command: [**521%**]

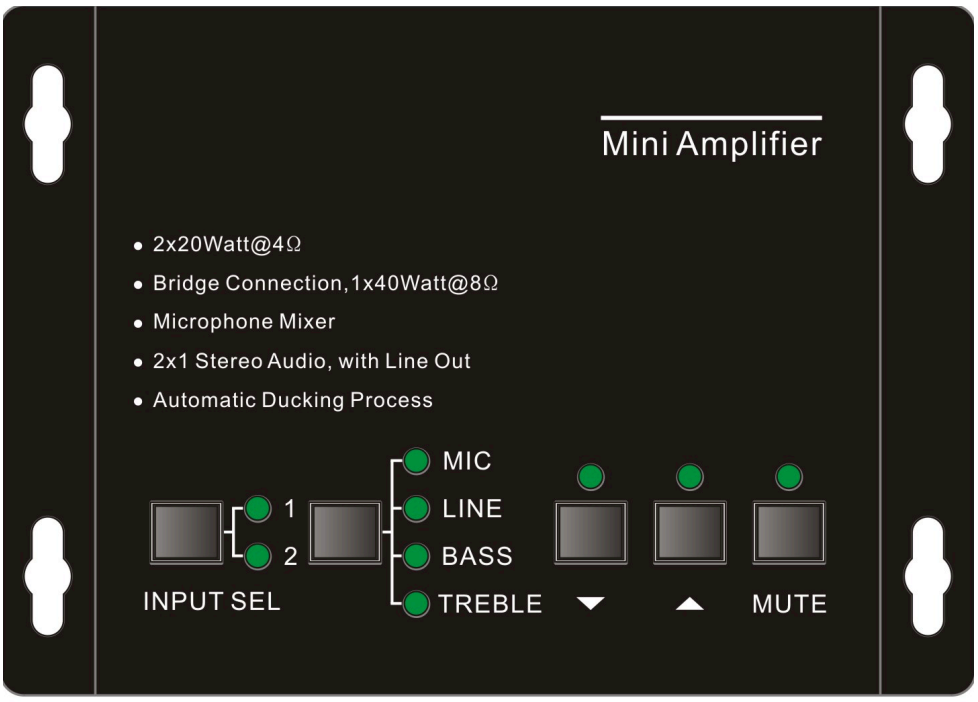
Example 4:

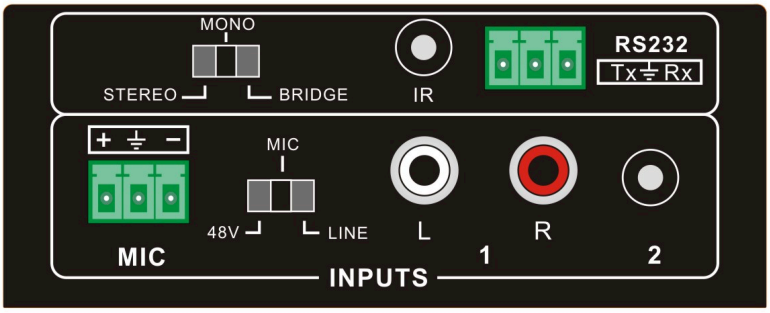
Checking the working status of PA2B. We should send the RS232 command: [**600%**]

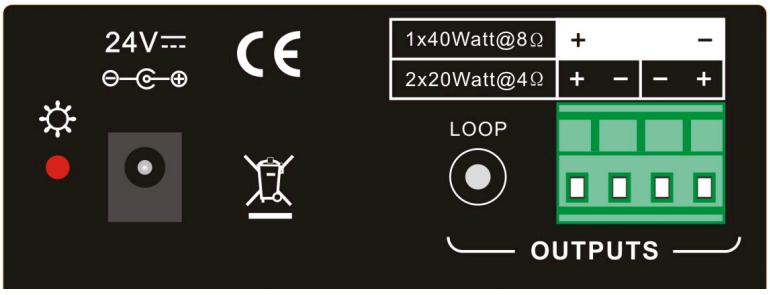
7. Application Diagram



8. Panel Drawing







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