

USER MANUAL

PA2

Mini Digital Amplifier, with EQ/Mixer

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Mini Digital Amplifier, with MIC Mixer and EQ



1. General Instruction:

PA2 is a small digital amplifier (Class-D), with EQ control and MIC mixer function. It is compact-size but powerful functions, including the 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.

2. Product Picture:



Front Panel



Rear Panel



Top Panel

3. Features:

- 2x20Watt@4Ohm as the default amplifier output.
- Bridge connection function. The user can switch the PA2 to be 1x40Watt@8Ohm by bridge connection.
- Dual-mono function. The user can sum up the stereo audio to two times mono audio.
- Microphone mixer function. The microphone will be mixed to the line audio output, and separately controllable.
- Ducking power technology. It keeps detecting the audio and MIC input, and reducing the power consumption when there is no inputs coming.
- Two stereo audio inputs, switchable by button, remote or RS232.
- Volume/Bass/Treble controllable by buttons or RS232
- Line audio output, with volume controllable.
- Optional control solution, by IR remote or volume panel.
- RS232 controlling function, with smart feedback.
- Extensibility: It can be controlled by PTN panel (WP18R & WP19), optional function.
- Antistatic case design: providing good protection for long-term and stable performance
- Internal international power supply (100Volt~240Volt AC, 50/60Hz) For worldwide compatibility.
- Fast switching speed. It is the high speed for the good performance.
- LED indicator, for power and working status.

4. Specification

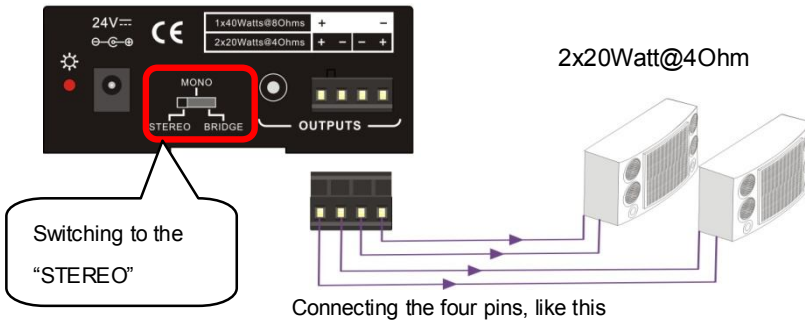
Audio Input		Audio Output	
Input	2 stereo audio, 1 MIC	Output	1 Amplifier, 1 stereo audio
Input Connector	2 RCA 1 3.5mm jack 1 6.5mm jack	Output Connector	1 3.5mm jack 1 Captive screw connector, 4 pole
Input Impedance	>10KΩ	Output Impedance	50Ω/stereo, 4~8Ω/Amplifier
Audio General			
Frequency Response	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	20 Watts X 2 (4 Ohms)
Control Parts			
Serial Control Port	RS-232, 9-pin female D connector	Pin Configurations	2 = TX, 3 = RX, 5 = GND
IR Remote	Optional IR remote	Front Panel Control	Optional mountable keypad
Options	TCP/IP control by PTNET(PTN's programmable interface)		

NOTE: All nominal levels are at $\pm 10\%$.

5. Audio Connection

5.1 Default output: 2x20Watt@4Ohm

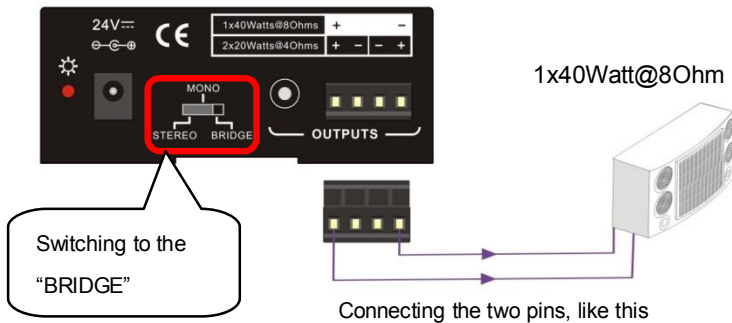
The default output of amplifier is 2x20Watt@4Ohm. So, the user can connect the amplifier output in the regular way. As the picture below:



5.2 Bridge connection: 1x40Watt@8Ohm

The PA2 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:



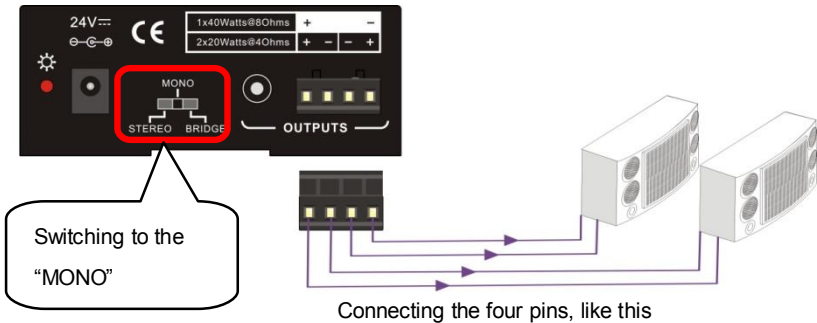
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5.3 Dual-mono output:

The PA2 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:

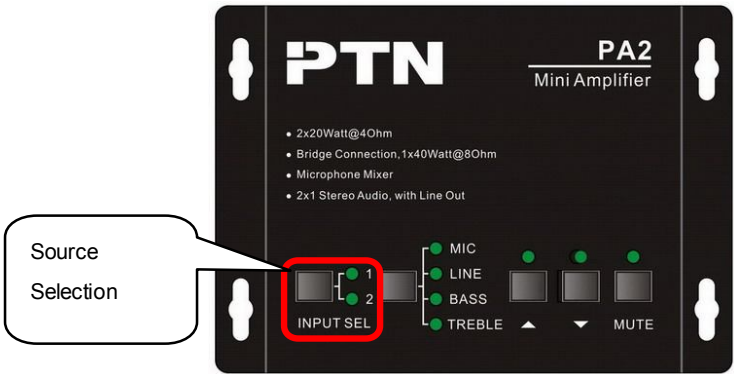


6. Buttons Controlling

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

6.1 Audio switching:

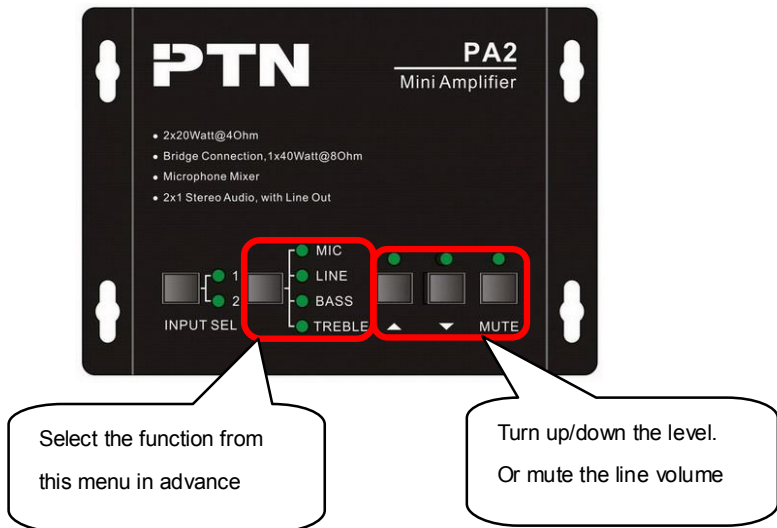
There are two switchable stereo audio inputs, one 2xRCA input, one 3.5mm jack input. It can be switched through the buttons as below:



6.2 Volume/EQ controlling:

The line volume and Microphone volume can be controlled by the buttons.

The Mic Volume/Line volume/Line bass/Line treble will be selected by the buttons, and controlled up/down/mute 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 “▲”.

7. 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 07 Treble 07

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Command	Function Description	Feedback Code
5[x][x]%	Preset MIC volume, [xx] is aranging from [00] to [60]. 61 degrees in total.	Volume of MIC :50
7[x][x]%	Preset line volume, [xx] is aranging from [00] to [60]. 61 degrees in total.	Volume of LINE :50
8[x][x]%	Preset the bass level, [xx] is aranging from [00] to [08]. 9 degrees in total.	Bass of LINE : 04
9[x][x]%	Preset the treble level, [xx] is aranging 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.

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%]

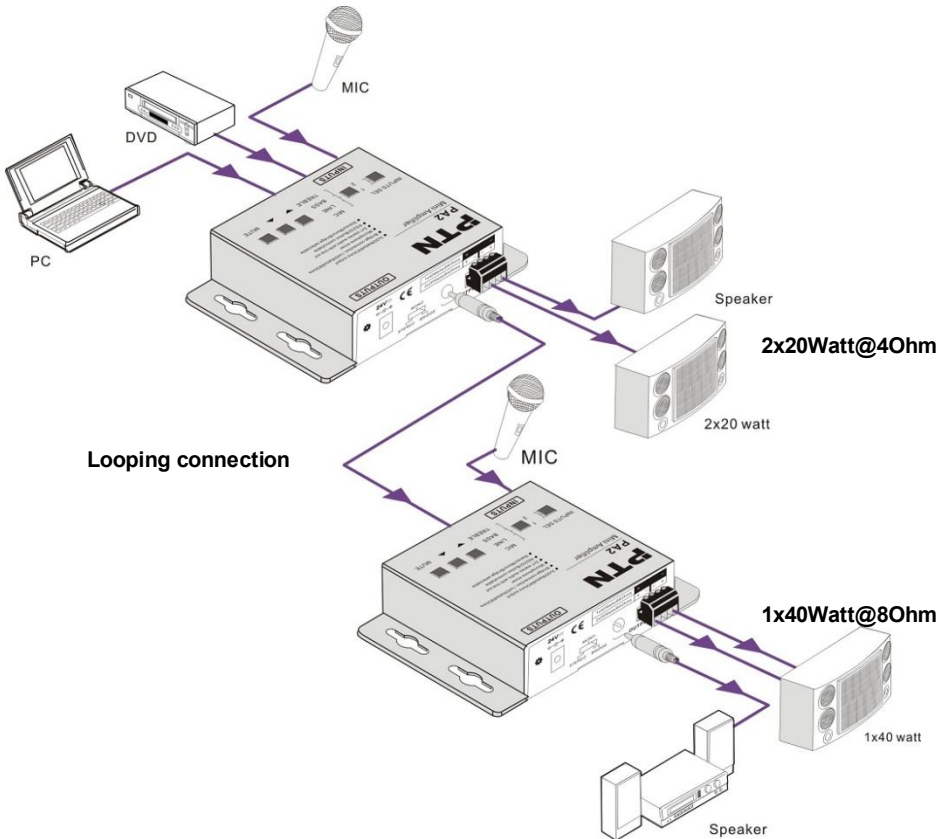
Example 3

Preset the MIC volume to be “21” degree. We should send the RS232 command:
[521%]

Example 4

Checking the working status of PA2. We should send the RS232 command: [600%]

8. System Diagram



9. Panel Drawing

Unit: mm

