

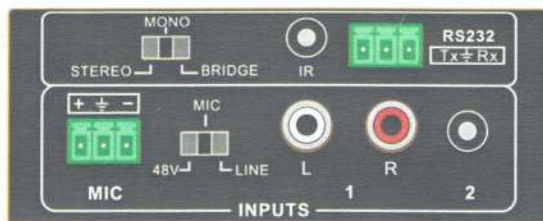
USER MANUAL

CV-MAD40B

Mini Digital Amplifier with EQ/Mixer



Top Panel



Front Panel



Rear Panel



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1. Introduction

CV-MAD40B is a compact-size digital amplifier (Class-D) with 3 inputs (2 line in and 1 balanced MIC). It is integrated with powerful 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.

2. Features

- Two stereo audio inputs, switchable by button, IR remote & RS232.
- Volume/Bass/Treble controllable by buttons IR remote & RS232.
- 2x20Watt@4Ohm as the default amplifier output.
- Line audio output at 3.5mm jack, with volume controllable.
- Bridge connection function. User can switch the CV-MAD40B to be 1x40Watt@8Ohm by bridge connection.
- Dual-mono function. User 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 be controlled separately.
- MIC input supports 48V phantom power, dynamic MIC and wireless MIC.
- MIC port can support balance/unbalance signal, suppress the external noise effectively.
- Noise gate function. It keeps detecting the audio and MIC input, will mute the output after 10 seconds when there is no input.
- Ultra low inrush current, no need for power sequencing. This allows multiple CV-MAD40B 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
- LED indicator, for power and working status.



3. Specification

Audio Input	Audio Output
Input	Output
2 stereo audio, 1 MIC	1 amplifier, 1 stereo audio
Input Connector	Output Connector
2 RCA 1 3.5mm jack 1 captive screw connector,	1 captive screw connector 1 3.5mm jack
Input Impedance	Output Impedance
>10K Ω	50 Ω /stereo, 4~8 Ω /Amplifier
Audio General	
Frequency Response	CMRR
20Hz ~ 20KHz	>70dB@20Hz~20KHz
SNR	Bandwidth
80dB at maximum output	20Hz ~ 25KHz
Stereo Channel Separation	THD + Noise
>75dB@20Hz to 20KHz	1%@1KHz, 0.3%@20KHz at nominal level
Voltage Gain	Power Output
32dB	2x20 Watts (4 Ohms)
Control Function	
RS232 Control	Pin Configurations
RS-232, 9-pin female D connector	2 = TX, 3 = RX, 5 = GND
IR Remote	
Optional IR remote	
TCP/IP Control	
TCP/IP controlled by PTNET(PTN's programmable interface)	

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

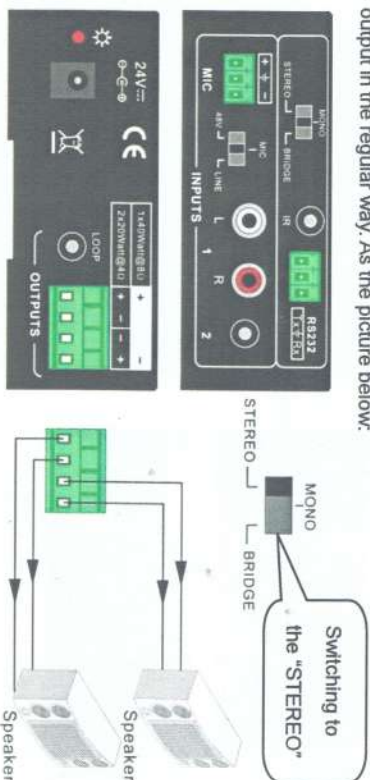


4. Audio Connection

4.1 Audio Output

4.1.1 Default output: 2x20Watt@4Ohm

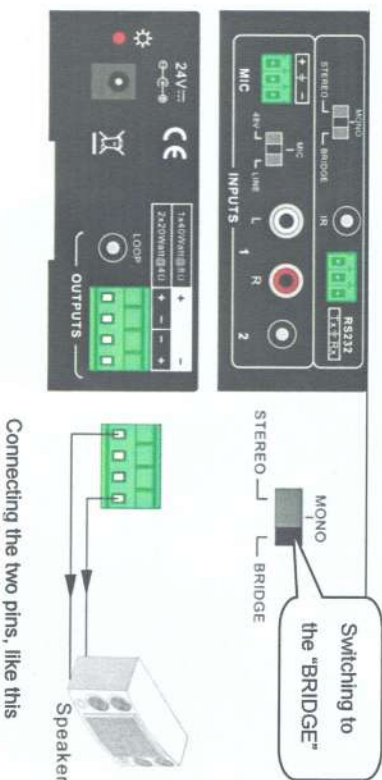
The default output of amplifier is 2x20Watt@4Ohm, so user can connect the amplifier output in the regular way. As the picture below.



4.1.2 Bridge connection: 1x40Watt@80hm

The CV-MAD40B has the bridge connection, to double the output power at 1x40Watt@80hm. 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:



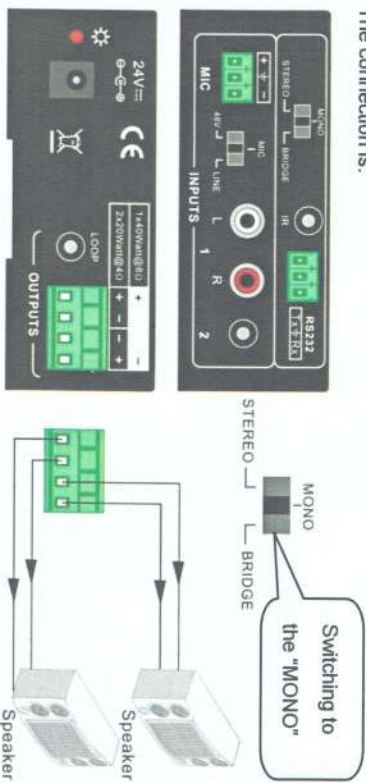


Mini Digital Amplifier, with MIC Mixer and EQ

4.1.3 Dual-mono output:

The CV-MAD40B 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:



Connecting the four pins, like this

4.2 Microphone input

The microphone input of CV-MAD40B 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 "GND" to ground.

NOTICE: In this mode, only condenser microphone can be connected with.

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:



Mini Digital Amplifier, with MIC Mixer and EQ

1) Unbalanced connection:

- a) "L" connects to ground, and "-" connects to signal.
- b) "L" connects to ground, and "+" connects to signal.

- 2) Balanced connection: "+" connects to positive, "-" connects to negative and "L" 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:

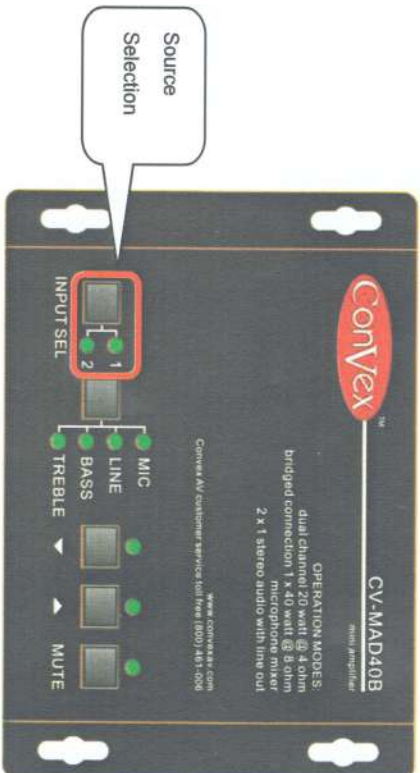
- 1) Unbalanced connection:
 - a) "L" connects to ground, and "-" connects to signal.
 - b) "L" connects to ground, and "+" connects to signal.
- 2) Balanced connection: "+" connects to positive, "-" connects to negative and "L" connects to ground.

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.

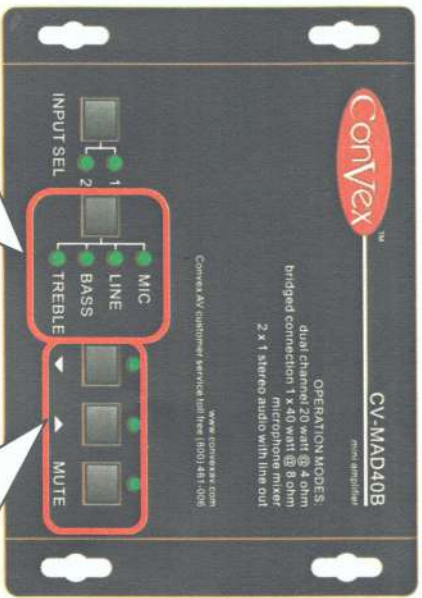




5.2 Volume/EQ controlling

The line volume and MIC 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:



Firstly to select the function from this menu.

Then to turn down/up the level, or mute the output.

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
3A0.	Turn on Noise gate	Gate On
4A0.	Turn 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	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 [09], 9 degrees in total.	Bass of LINE: 04
9[x][x]%	Preset the treble level, [xx] arranges from [00] to [09], 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:

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

Example 2:

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

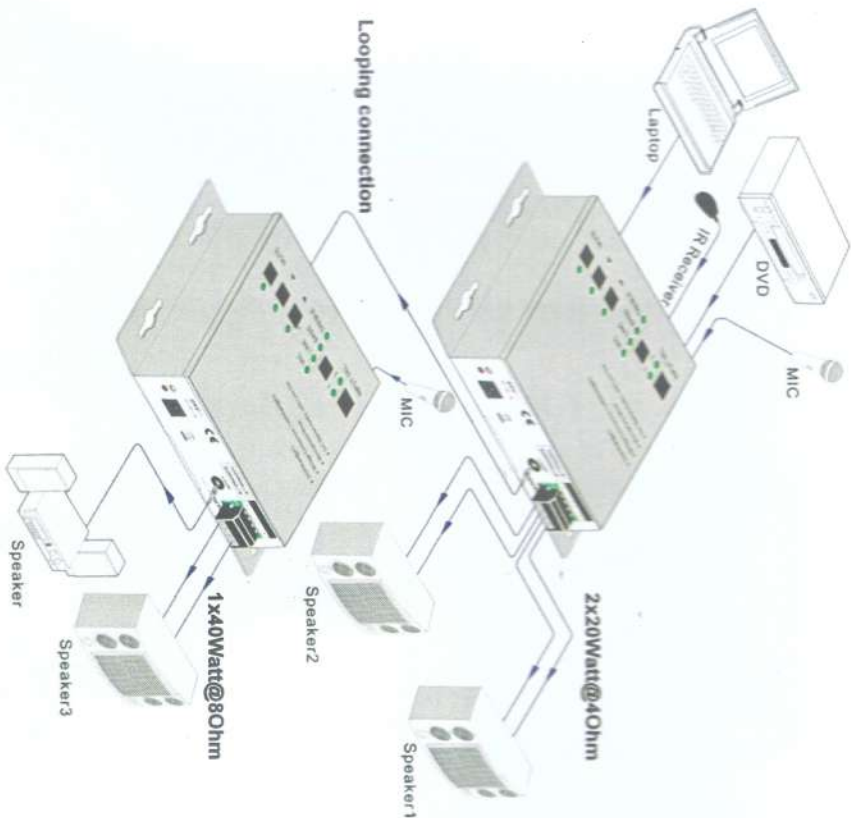
Example 3:

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

Example 4:

Check the working status of CV-MAD40B. We should send the RS232 command: [600%]

7. System Diagram



8. Panel Drawing

