MP-A250B

Mini Audio Amplifier

Preface

Read this user manual carefully before using this product. Pictures shown in this manual is for reference only, different model and specifications are subject to real product.

This manual is only for operation instruction only, not for any maintenance usage.

Trademarks

Product model and logo are trademarks. Any other trademarks mentioned in this manual are acknowledged as the properties of the trademark owner. No part of this publication may be copied or reproduced without prior written consent.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.

SAFETY PRECAUTIONS

To insure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment

- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.

- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.

- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.

- Refer all servicing to qualified service personnel.

- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.

- Do not put any heavy items on the extension cable in case of extrusion.

- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.

- Install the device in a place with fine ventilation to avoid damage caused by overheat.

- Keep the module away from liquids.

- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.

- Do not twist or pull by force ends of the optical cable. It can cause malfunction.

- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

- Unplug the power cord when left unused for a long period of time.

- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

Contents

1. Introduction

1.1 Introduction to MP-A250B

MP-A250B is a compact-size digital amplifier (Class-D) with 3 inputs (1 L+R stereo audio, 1 analog audio, 1 optical fiber audio). It features switchable stereo or mono output, and boasts complete EQ adjustment and intuitive work status display, making it an ideal addition to a classroom or conference room application.

1.2 Features

- 3 audio inputs: 1 L+R stereo, 1 analog, 1 optical fiber
- Switchable stereo / mono output
- Complete EQ management: including LINE, BASS, TREBLE
- Easy volume adjustment via a rotary knob
- Audio loop output
- Intuitive LED indicators for input source, control and volume setting
- Controllable via RS232, IR, TCP/IP (optional)
- Web-based GUI
- Power off memory

1.3 Package List

- ✓ 1 x MP-A250B
- ✓ 4 x Screws
- ✓ 1 x IR Remote
- ✓ 1 x User manual
- ✓ 2 x Detachable Mounting Ears
- ✓ 2 x Pluggable Terminal Blocks (1 3-pin& 1 4-pin)
- ✓ 1 x Power Adapter (DC 33V 4A)
- ✓ 1 x IR Receiver (5V, without carrier)

📖 Please confirm if the product and the accessories are all included, if not, please contact with the dealers.
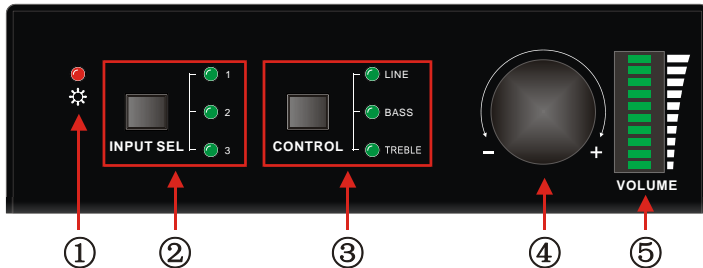
2. Panel Description

2.1 Front Panel

Figure 2- 1 Front Panel of MP-A250B

No.	Name	Description
①	Power LED	Illuminate red when powered on
②	Input Selection	Press to select any one of the 3 inputs, indicators will light accordingly Input 1~3 corresponds to audio sources connected to the 3 audio input ports separately; ➢ 1: L+R stereo audio ➢ 2: 3.5mm analog audio ➢ 3: optical audio
③	Control	Press to select the audio to be controlled, including LINE, BASS, TREBLE
④	Volume Knob	● Press to mute/unmute the audio 　Note: after pressed the button to mute the audio, except pressing it again to restore the audio at the same volume, users can rotate the knob to enable audio output at respective volume. ● Rotate the knob to adjust volume, volume bars will change accordingly 　➢ Clockwise Rotation: Volume up 　➢ Anticlockwise Rotation: Volume down
⑤	Volume Bars	Indicate real-time volume setting, 10 bars in total, no volume bar will be lighted when the audio is muted

Operation Format: "INPUT SEL" + "CONTROL" + "Volume Knob"

Example: To adjust bass audio of input 3, select input 3 -> choose bass -> adjust the volume knob.
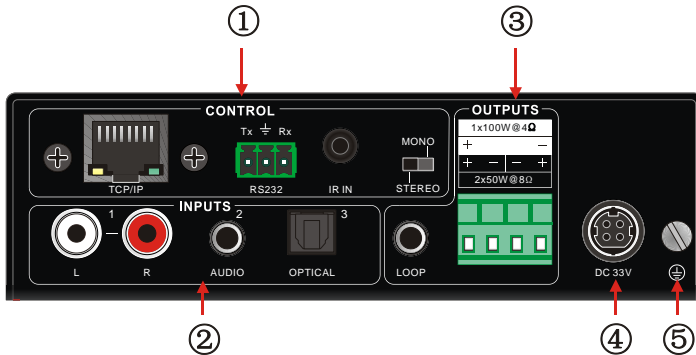
2.2 Rear Panel

Figure 2- 2 Rear Panel of MP-A250B

No.	Name	Description
①	CONTROL	**TCP/IP**: (optional) connect with control device to enable IP control via web-based GUI& TCP/IP communication software; Indicators will blink when connected to control device and communicated normally
		RS232: connect with control device to enable serial control
		IR IN: connect with IR receiver to collect infrade signal
		Channel Switcher: dial to STEREO or MONO to enable corresponding output mode
②	INPUTS	Audio inputs area, 3 audio inputs in total, including 1 stereo audio, 1 analog audio and 1 optical audio
③	OUTPUTS	**LOOP**: analog audio loop output port, available only when input signal is L+R stereo audio
		Audio Output: including stereo audio (2x50W@8Ω), or mono output (1x100W@4Ω)
④	DC 33V	Insert DC 33V 4A power adapter here
⑤	GND	Connect to grounding

📖 Dial the Channel Switcher to demand status before connecting output device. Once connected, do not try to change the status while it's working.

3. System Connection

3.1 Usage Precautions

1) System should be installed in a clean environment and has a prop temperature and humidity.
2) All of the power switches, plugs, sockets and power cords should be insulated and safety.
3) All devices should be connected before power on.
4) Use straight-thru Cat5e/Cat6 with TIA/EIA T568B terminations to connect TCP/IP port.
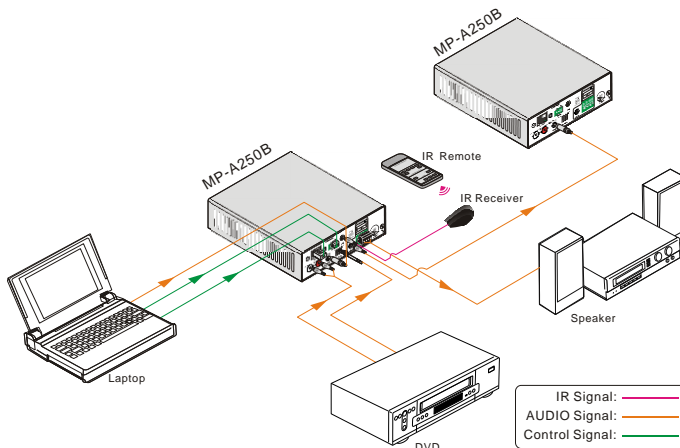
3.2 System Diagram

Figure 3- 1 System Diagram

3.3 Connection Procedure

Step1. Connect audio sources (such as Blue-ray DVD) to **INPUT** ports of the device with audio cables;

Step2. Dial the Channel Switcher to the right status, and connect audio output devices (such as speakers) to audio output port accordingly (Specified in *3.4 Audio Output Connection*).

Step3. (optional) Insert an IR receiver (5V, without carrier) to **IR IN** to enable IR control.

Step4. (optional) Connect a control device (e.g. a PC) to **RS232** port to enable serial control.

Step5. (optional) Connect a control device (e.g. a PC) to **TCP/IP** port to enable IP control.

Step6. Plug DC 33V power adaptor to the power port of MP-A250B.

3.4 Audio Output Connection

3.4.1 Stereo output (default): 2x50Watt@8Ohm

Dial the switcher to STEREO to enable 2 50Watt@8Ohm stereo output mode. Connect the amplifier regularly (as shown in the following figure):
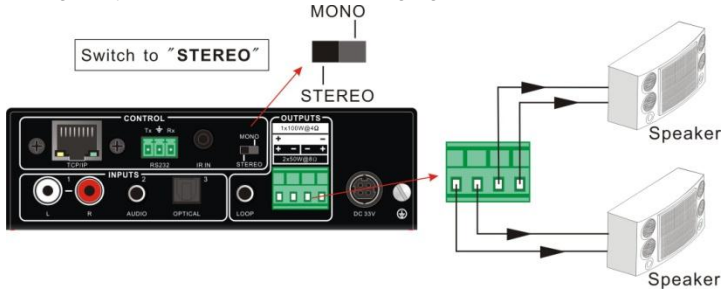

Figure 3- 2 Stereo Output Connection

3.4.2 Mono output: 1x100Watt@4Ohm
To enable mono 1x100Watt@4Ohm output, dial the switcher to MONO, and connect output devices as the figure below:
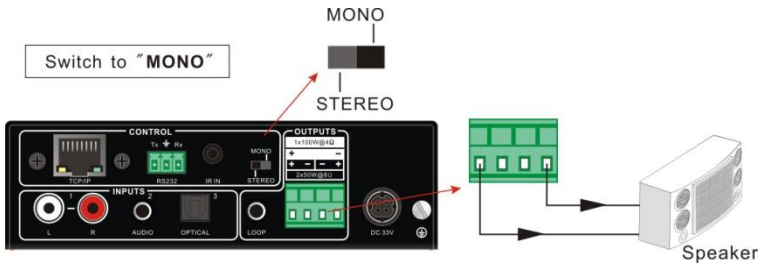
Figure 3- 3 Mono Output Connection

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3.5 Loop Connection

MP-A250B boasts a LOOP port for audio signal loop output, max 255 units can be looped within the same operation system. Connect MP-A250B like this:
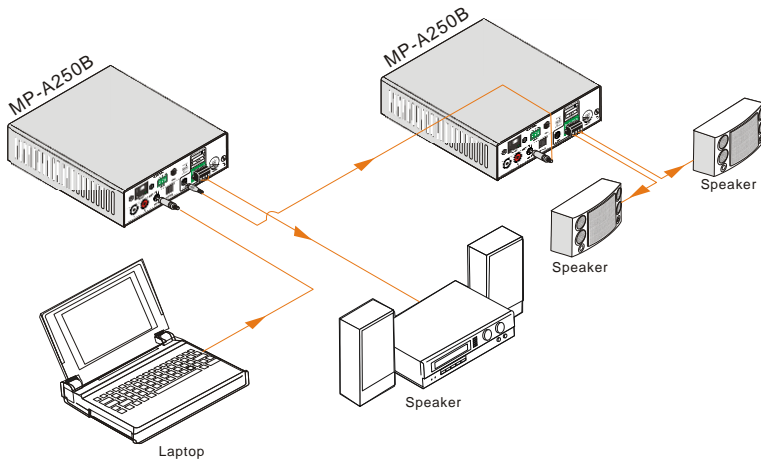
Figure 3- 4 Loop Connection

Then audio signal sent to the first MP-A250B is cascaded to other connected MP-A250B, which enables multiple MP-A250B share the same audio source.

📖

1. Audio loop output is available only when the 1st MP-A250B select input 1/2 as source.

2. Audio control operations are not available to looped audio signal.

3.6 Application

MP-A250B has a good application in various occasions, such as computer realm, monitoring, big screen displaying, meeting room, education and bank & securities institution etc.

4. System Control

4.1 Front Panel Button Control

Front panel buttons provides direct audio control including input source selection and audio effect adjustment.

Figure 4- 1 Front Panel Buttons

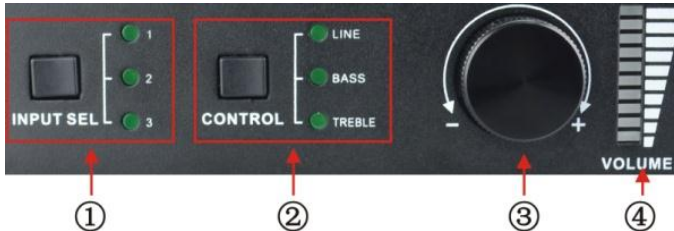**Operation Format**: Input Sel + Control + Volume Knob (indicators and volume bar will display real-time operation)

➢ **Input selection (area ①):**

Press button **INPUT SEL** to switch among the 3 inputs cyclely, relative LED will light to indicate real-time selection. There are 3 selectable audio sources, corresponding to the 3 audio input ports on the rear panel separately.

1: L+R stereo audio

2: 3.5mm analog audio

3: optical audio

➢ **Control (EQ management) (area ②):**

Including LINE, BASS and TREBLE, press button **Control** to switch among the 3 inputs circularly, relative LED will light to indicate real-time selection.

➢ **Volume Knob (area ③):**

Clockwise Rotation: Volume up

Anticlockwise Rotation: Volume down

About the Volume Bar (area ④):

Volume bar indicates real-time volume setting, 10 bars in total, the higher the volume is, the more bars will be illuminated. In different EQ control, volume bar tend to act differently:

● LINE: Line volume can be 0~60, one more volume bar will light when the volume is turned up by 6.

● BASS: bass volume can be 0~10

● TREBLE: treble volume can be 0~10

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4.2 IR Control

Connect an IR receiver (5V, without carrier) to IR IN port on the rear panel, users are able to control the amplifier by the included IR remote (see as below):
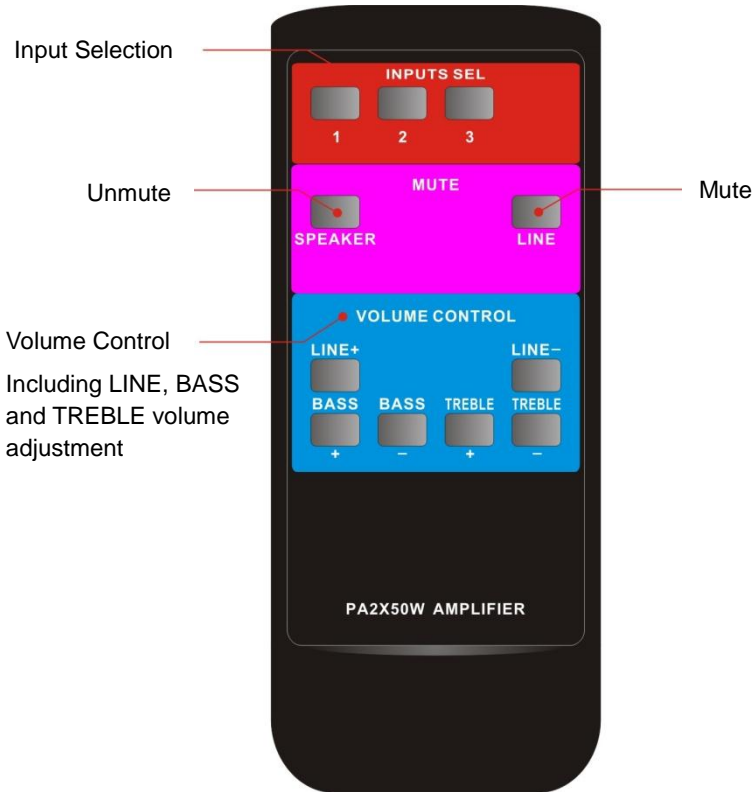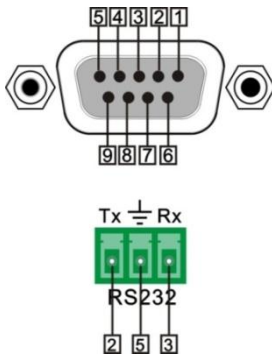
Input Selection

Unmute

Mute

Volume Control

Including LINE, BASS and TREBLE volume adjustment

Figure 4- 2 IR Remote

4.3 RS232 Control

MP-A250B boasts a 3-pin pluggable terminal block for serial control. The definition of its pins is listed in the table below.

No.	Pin	Function
1	N/u	Unused
2	Tx	Transmit
3	Rx	Receive
4	N/u	Unused
5	Gnd	Ground
6	N/u	Unused
7	N/u	Unused
8	N/u	Unused
9	N/u	Unused

Connect MP-A250B to the control device (e.g. a PC) with RS232 cable and set the parameters in the right manner, the control device is capable to control MP-A250B via designed software.

4.3.1 Installation/uninstallation of RS232 Control Software

Installation: Copy the control software file to the computer connected with MP-A250B.

Uninstallation: Delete all the control software files in corresponding file path.

4.3.2 Basic Settings

Firstly, connect MP-A250B with an input device and an output device. Then, connect it with a computer which is installed with RS232 control software. Double-click the software icon to run this software.

Here we take the software **CommWatch.exe** as example. The icon is showed as below:

CommWatch.exe

The interface of the control software is showed as below:

Parameter Configuration area

Monitoring area, indicates whether the command sent works.

Command Sending area
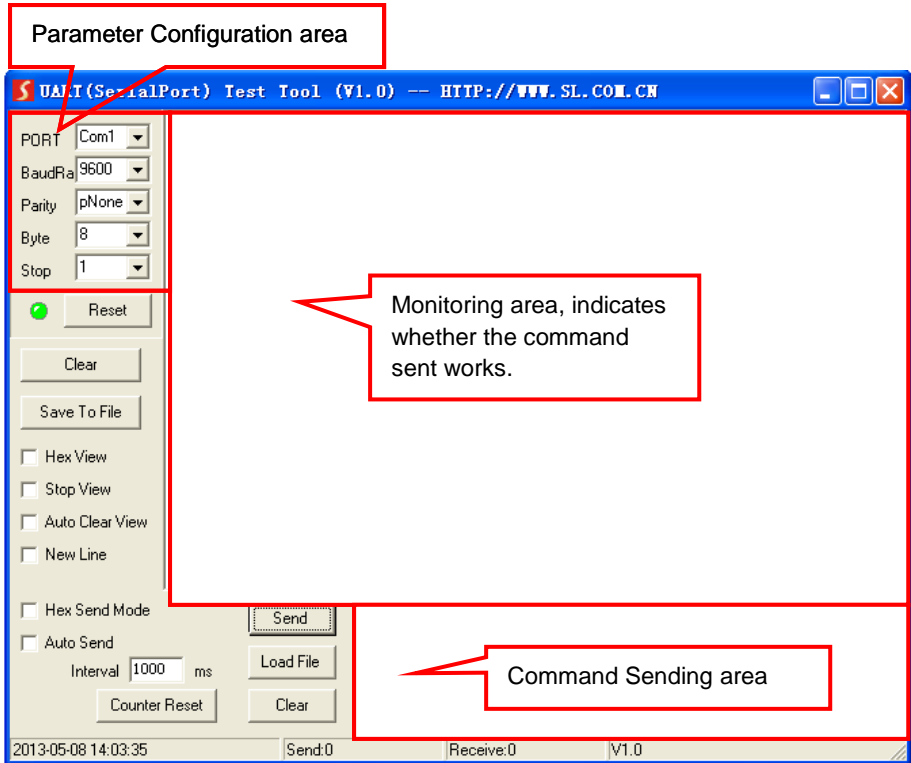
Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, only then will you be able to send command in Command Sending Area.

4.3.3 RS232 Communication Commands

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1) Case-sensitive.

2) "[", "]" in the commands are only for easy recognition and not necessary in real operations. Other symbols including "." "%" are parts of the commands.

3) Feedbacks listed in the column "Feedback" are only for reference, feedbacks may vary according to different operations.

Communication protocol: Baud rate: 9600; Data bit: 8; Stop bit: 1; Parity bit: none.

Command	Description	Feedback
1A1.	Switch to input 1	A: 1 -> 1
2A1.	Switch to input 2	A: 2 -> 1
3A1.	Switch to input 3	A: 3 -> 1
0A0.	Mute Audio Line out	Mute Audio
0A1.	Unmute Audio Line out	Unmute Audio
600%	Inquire present working status	A: 1 -> 1 Volume: 30 Bass: 0 Treble: 0
601%	Turn up Line volume by 1	Volume of LINE: 51
602%	Turn down Line volume by 1	Volume of LINE: 51
603%	Turn up Bass volume by 1	Bass of LINE: 4
604%	Turn down Bass volume by 1	Bass of LINE: 4
605%	Turn up Treble volume by 1	Treble of LINE: 4
606%	Turn down Treble volume by 1	Treble of LINE: 4
607%	Restore factory default	Factory Default A: 1 -> 1 Volume: 45 Bass: 5 Treble: 5
610%	Turn up Line volume by 3	Volume of LINE: 54
620%	Turn down Line volume by 3	Volume of LINE: 51
61X%	Turn up Line volume by X	Volume of LINE: 54
62X%	Turn down Line volume by X	Volume of LINE: 54
7[x][x]%	Preset line volume, [xx] can be 00~60, 61 degrees in total.	Volume of LINE: 50
8[x][x]%	Preset the bass level, [xx] can be 00~10, 11 degrees in total.	Bass of LINE: 7

9[x][x]%	Preset the treble level, [xx] can be 00~10, 11 degrees in total.	Treble of LINE: 7
GetIP;	Get the IP of the device	IP: 192.168.0.178

4.4 TCP/IP Control

MP-A250B boasts option TCP/IP port for IP control.

Default settings: IP: 192.168.0.178; Subnet Mast: 255.255.255.0; Gateway: 192.168.0.1; Serial Port: 4001.

IP& gateway can be changed as you need, Serial Port cannot be changed.

Connect the Ethernet port of control device and TCP/IP port of MP-A250B, and set same network segment for the 2 devices, users are able to control the device via web-based GUI or designed TCP/IP communication software.

4.4.1 Control Modes

MP-A250B can be controlled by PC without Ethernet access or PC(s) within a LAN.

● **Controlled by PC without Ethernet access**
Connect a computer to the TCP/IP port of the MP-A250B, and set its network segment to the same as the MP-A250B's.
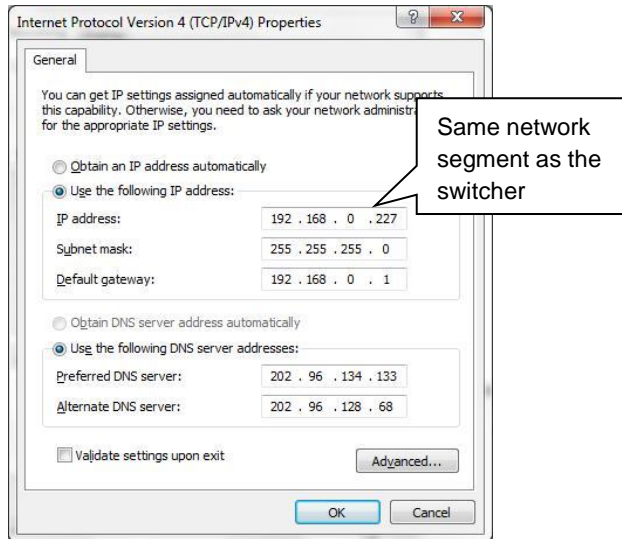
● **Controlled by PC(s) in LAN**
Connect MP-A250B, a router and several PCs to setup a LAN (as shown in the following figure). Set the network segment of MP-A250B to the same as the router's, then PCs within the LAN are able to control MP-A250B.
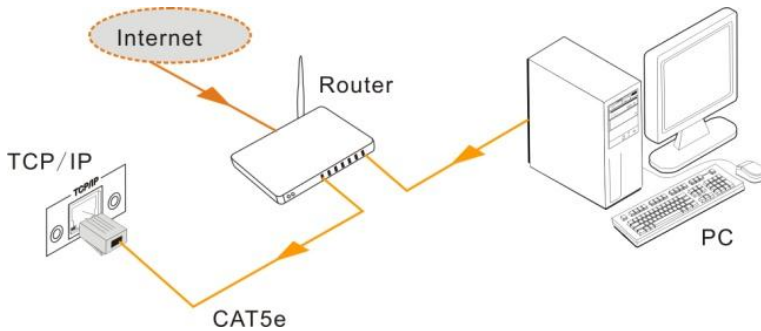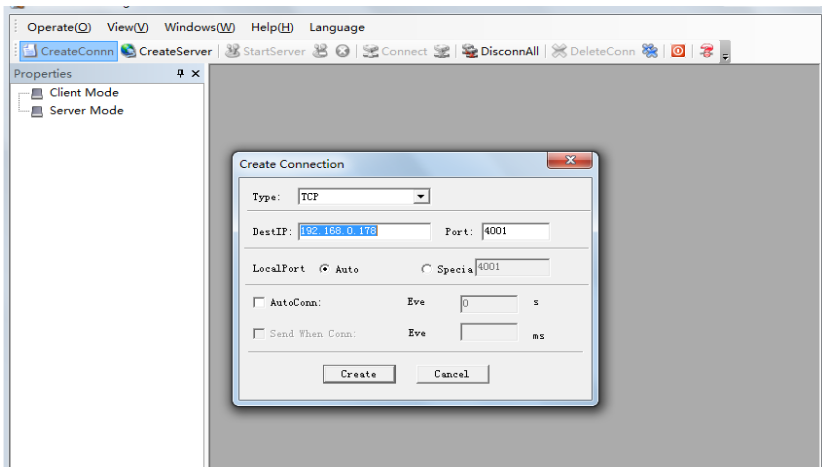
Follow these steps to connect the devices:

Step1. Connect the TCP/IP port of the MP-A250B to Ethernet port of PC with straight-thru CAT5e/6.

Step2. Set the PC's network segment to the same as the MP-A250B's.

Step3. Set the MP-A250B's network segment to the same as the router.

Step4. Set the PC's network segment to the original ones.

Step5. Connect the MP-A250B and PC(s) to the router. PC(s) within the LAN is able to control the MP-A250B asynchronously.
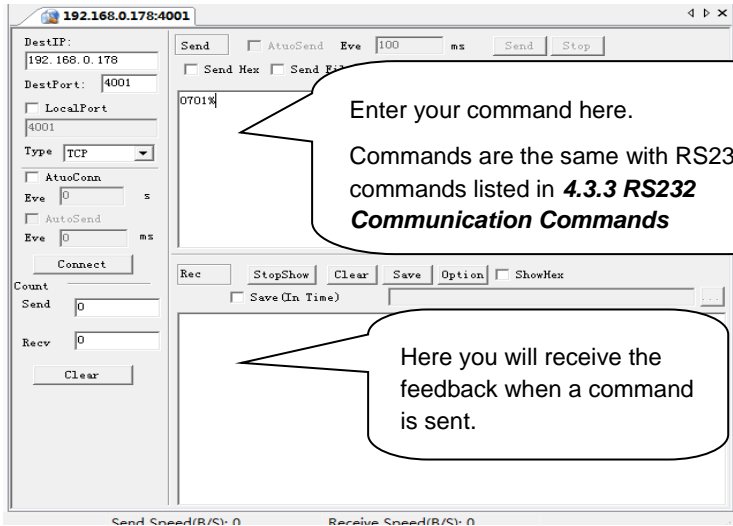
4.4.2 Control via TCP/IP communication software

(Exampled by TCPUDP software)

1) Connect a computer and MP-A250B to the same network. Open the TCPUDP software (or any other TCP/IP communication software) and create a connection, enter the IP address and port of MP-A250B (default IP: 192.168.0.178, port:4001):

2) After connect successfully, we can enter commands to control the MP-A250B , as below:

Enter your command here.

Commands are the same with RS232 commands listed in *4.3.3 RS232 Communication Commands*

Here you will receive the feedback when a command is sent.

4.4.3 Control via web-based GUI

MP-A250B provides with built-in GUI for convenient TCP/IP control. GUI allows users to interact with MP-A250B through graphical icons and visual indicators.

Type 192.168.0.178 (default IP, changeable via GUI) in your browser, it will enter the log-in interface shown as below:
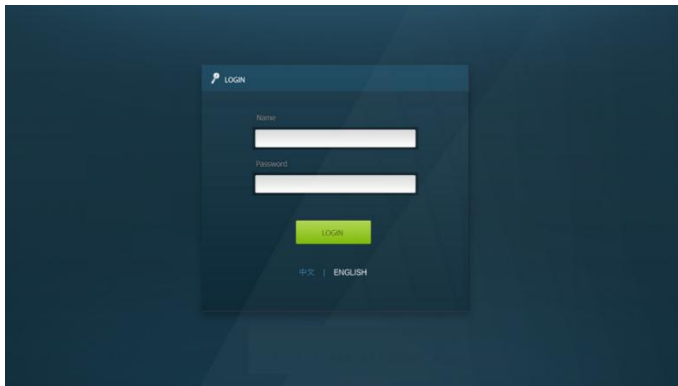

Figure 4- 3 Log-in interface

GUI interfaces can be displayed in Chinese/ English, selectable by clicking 中文/ ENGLISH.

Type the right name and password in relative column**:**

Name: admin; **Password**: admin (default setting, changeable via GUI)

Click **LOGIN**, it will show the audio selection interface as shown below:

Audio Selection:

Figure 4- 4 Network Control

In this interface, you can:

➢ Select input

➢ Mute/ Unmute

➢ LINE/ BASS/ TREBLE control: drag the volume dot to turn down/ up the corresponding volume

➢ Switch to network configuration interface by clicking **NETWORK**

Network Configuration:

Figure 4- 5 Audio Selection

In this interface, you can:

➢ Configure network settings:

IP: support DHCP and Static IP, choose demanded state by clicking the button

DHCP: IP Address, subnet mask and gateway are fixed in this mode.

Static IP: set IP Address, subnet mask and gateway manually. Make sure the IP is different with control device's.

➢ Modify password: type in new password in the column, max at 5 numbers/ letters

➢ Inquire software version

➢ Switch to audio selection interface by clicking **AUDIO SEL**

If there is any modification in this interface, press **Save** to restore the settings, or press **Cancel** to withdraw. Click **ADUIO SEL** to return to NETWORK interface.

📖 Clear the cache of the browser beforehand to ensure reliable GUI operation.

4.4.4 Port Management

Type the designed website 192.168.0.178:100 (Default, changeable via GUI) in your browser. Enter correct username and password (same with GUI name and password) to log in the WebServer:

Here is the main configuration interface of the WebServer:
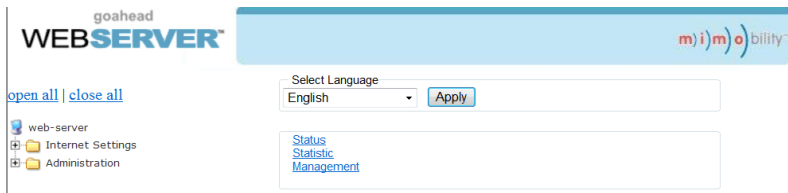
In this interface, you can:

➢ Change website display language

➢ Modify network settings: Go to Internet Settings -> WAN

➢ Upgrade TCP/IP module: Go to Administration -> Upload Program -> Select program file -> Start upgrading

Reboot the device after upgrading.

5. Specification

Input			Output		
Input Signal	1x L+R stereo audio 1x 3.5mm analog audio 1x Optical Fiber audio		Output Signal	1x LOOP 2x Stereo audio/ 1 Mono audio	
Connectors	2x RCA 1x 3.5mm TRS plug 1x SPDIF		Connectors	1x 3.5mm jack 1x 4-pin 5.08mm connector	
Input impedance	>10KΩ		Damping coefficient	>100	
Control					
Control Ports	1x RS232 (3-pin pluggable terminal block) 1x IR IN (3.5mm female) 1x TCP/IP (RJ45 female, optional)				
Panel Control	Front panel buttons& rear panel switcher				
General					
SNR	80dB		THD+ Noise	1%@1KHz 50W	
Separation	75dB 20Hz～20KHz		Damping coefficient	100	
Voltage Gain	32dB		Output Power	1×100W@4Ω/2×50W@8Ω	
Power Supply	DC 33V 4A		Power Consumption	1.48W	
Work Temperature	0~50℃		Reference Humility	10%～90%	
Dimensions (W*H*D)	148 x44 x165 mm		Weight	0.72kg	

NOTE: All nominal levels are at ±10%.

6. Panel Drawing
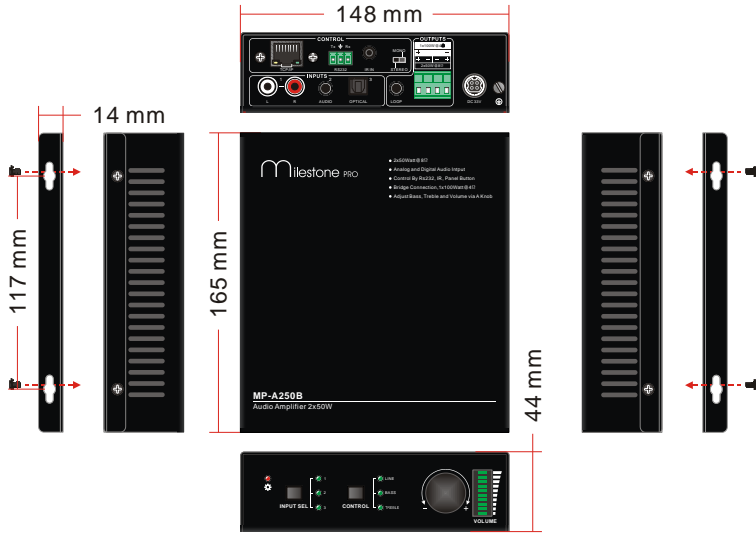
7. Troubleshooting & Maintenance

Problem	Possible Cause	Solution
No output audio	Loose or broken connection at input/ output end	Reconnect the devices.
	No connected source at the chosen input channel	Insert source to the port or change for other input channels.
	Audio has been muted	Press the volume knob to unmute.
	Wrong output connection	Connect output according to different transmission mode (stereo or mono).
Power indicator is off and the device respond nothing to any operation	Not energized yet	Energize the device.
	Loose or broken power connection	Reconnect the power adapter.
Fail in TCP/IP control	Control device and MP-A250B are on different network segment	Set the network segment of control device to the same with MP-A250B 's.
	Network segment of MP-A250B is different with LAN's.	Set the network segment of MP-A250B to the same with LAN's.
Fail in RS232 control	Loose or broken RS232 connection	Reconnect the devices or change for another RS232 cable.
	Wrong command	Send the exact command listed in *4.3.3.*
	Wrong communication protocol	Set the protocol to: Baud rate: 9600; Data bit: 8; Stop bit: 1; Parity bit: none.
Fail in IR control	Run out of battery	Change for new batteries.
	Exceed effective control distance or angle	Adjust control distance and angle.
No loop output	No connected source at input 1 & 2 of the 1st MP-A250B	Connect audio source to input 1 or 2 of the 1st MP-A250B.
	Wrong input selection at the 1st MP-A250B	Select input 1/2 at the 1st MP-A250B

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.

8. After-sales Service

If there appear some problems when running the device, please check and deal with the problems reference to this user manual.

1) Product Limited Warranty: We warrant that our products will be free from defects in materials and workmanship for **three years,** which starts from the first day the product leaves warehouse (check the SN mark on the product).
Proof of purchase in the form of a bill of sale or receipted invoice must be presented to obtain warranty service.

2) What the warranty does not cover:
- Warranty expiration.
- Factory applied serial number has been altered or removed from the product.
- Damage, deterioration or malfunction caused by:
    - Normal wear and tear
    - Use of supplies or parts not meeting our specifications
    - No certificate or invoice as the proof of warranty.
    - The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
    - Damage caused by force majeure.
    - Servicing not authorized
    - Other causes which does not relate to a product defect
- Delivery, installation or labor charges for installation or setup of the product

3) Technical Support: Email to our after-sales department or make a call, please inform us the following information about your cases.
- Product version and name.
- Detailed failure situations.
- The formation of the cases.

Remarks: For any questions or problems, please try to get help from your local distributor.