avgear

USER MANUAL

AVG-MA2

Audio

Mini Amplifier 2x50W

Version: MA2_2015V1.0

The AVG-MA2 Mini Audio Amplifier is a compact-size digital amplifier (Class-D) with 3 inputs (1 L+R stereo audio, 1 analog audio, 1 optical fiber audio).

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 function
- Easy installation with rack-mounting design

PLEASE READ THIS PRODUCT MANUAL CAREFULLY BEFORE USING THIS PRODUCT.

This manual is only for operation instruction only, and not to be used in a maintenance capacity. The functions described in this version are current as at March 2015. Any changes of functions and operational parameters will be updated in future manual versions. Please refer to your dealer for the latest product details.

Version 1.0 1/3/15

SAFETY OPERATION GUIDE 

In order to guarantee the reliable operation of the equipment and safety of the user, please abide by the following procedures in installation, use and maintenance:

1. The system must be earthed properly. Please do not use two blade plugs and ensure the AC power supply ranges from 100v to 240v and from 50Hz to 60Hz.
2. Do not install the switcher in an environment where it will be exposed to extreme hot or cold temperatures.
3. This unit will generate heat during operation, please ensure that you allow adequate ventilation to ensure reliable operation.
4. Please disconnect the unit from mains power if it will be left unused for a long time.
5. Please DO NOT try to open the casing of the equipment, DO NOT attempt to repair the unit. Opening the unit will void the warranty. There are high voltage components in the unit and attempting to repair the unit could result in serious injury.
6. Do not allow the unit to come into contact with any liquid as that could result in personal injury and product failure.

TABLE OF CONTENTS

1. Introduction

1.1. Introduction to the AVG-MA2

The AVG-MA2 Mini Audio Amplifier 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 a switchable stereo or mono output, and boasts complete EQ adjustment and intuitive work status display, making it an ideal addition in 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 function
- Easy installation with rack-mounting design

2. What's in the Box

- 1 x Mini Audio Amplifier
- 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)

Note: Please confirm if the product and the accessories are all included, if not, please contact your dealer.

3. Product Appearance of the AVG-MA2

3.1. Front Panel

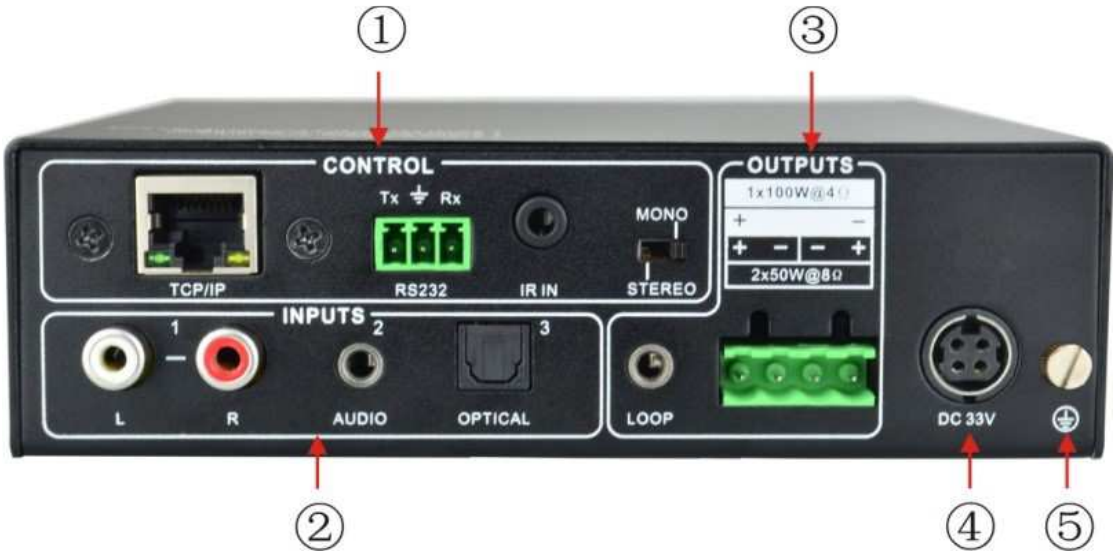
No.	Name	Description
①	Power LED	Illuminates red when powered on
②	Input Selection	Press to select any one of the 3 inputs, indicators will light accordingly Input 1~3 corresponds to audio sources connected to the 3 audio input ports separately; ▪ 1: L+R stereo audio ▪ 2: 3.5mm analog audio ▪ 3: optical 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: press the button to mute the audio, toggling it again to restore the audio at the same volume, users can also 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 lit 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.

Note: Pictures shown in this manual are for reference only.

3.2. Rear Panel



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 communicating normally
		RS232: connect with control device to enable serial control
		IR IN: connect with IR receiver to collect infrared signal
		Channel Switcher: dial to STEREO or MONO to enable corresponding output mode
②	INPUTS	Audio input 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 ground

Note: Select Stereo or Mono Output before connecting output device. Once connected, do not change the status while it's working.

4. System Connection

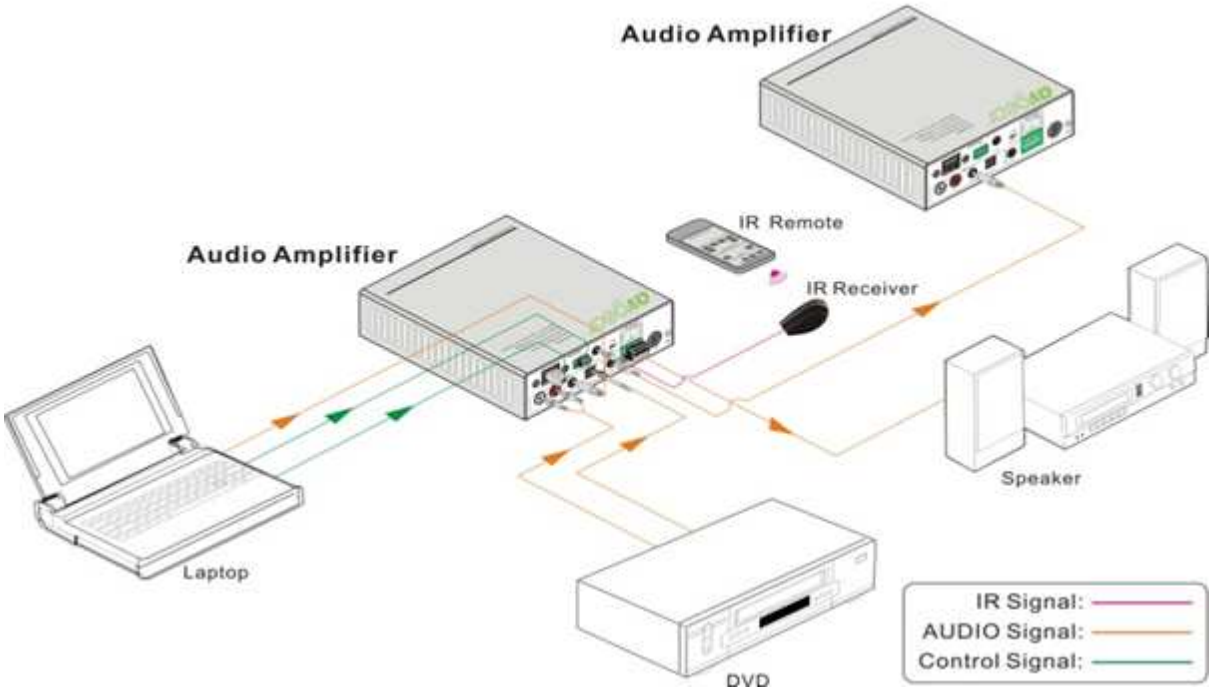
4.1. System Applications

The AVG-MA2's reliable performance in a control and transmission environment makes the AVG-MA2 ideal for the IT computer realm, signal monitoring, big screen displays, conference systems, television broadcast, education, banking and security institutions etc.

4.2. Usage Precautions

1. System should be installed in a clean environment with temperature and humidity maintained to within equipment specification.
2. All of the power switches, plugs, sockets and power cords should be insulated and safe.
3. All devices should be connected before power is turned on.
4. Use straight-thru Cat5e/Cat6 with TIA/EIA T568B terminations to connect TCP/IP port.

4.3. Connection Diagram



4.4. Connection Procedure

Step 1. Connect audio sources (such as Blu-ray DVD) to **INPUT** ports of the device with audio cables;

Step 2. Dial the Output Selector to mono or stereo, and connect audio output devices (such as speakers) to audio output port accordingly (Specified in *4.5 Audio Output Connection*).

Step 3. (optional) Insert an IR receiver (5V, without carrier) to **IR IN** to enable IR control.

Step 4. (optional) Connect a control device (e.g. a PC) to **RS232** port to enable serial control.

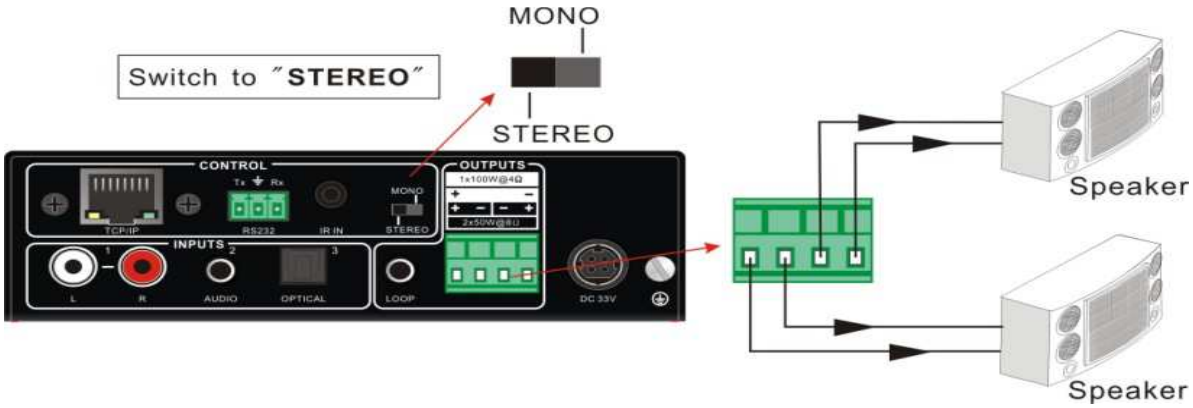
Step 5. (optional) Connect a control device (e.g. a PC) to **TCP/IP** port to enable IP control.

Step 6. Plug DC 33V power adaptor to the power port of Mini Audio Amplifier.

4.5. Audio Output Connection

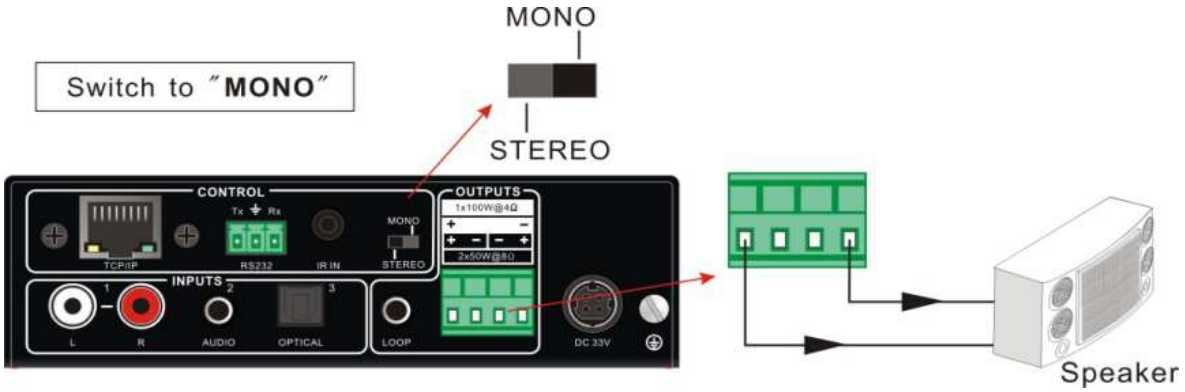
4.5.1. Stereo Output (default): 2x50Watt@8Ohm

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



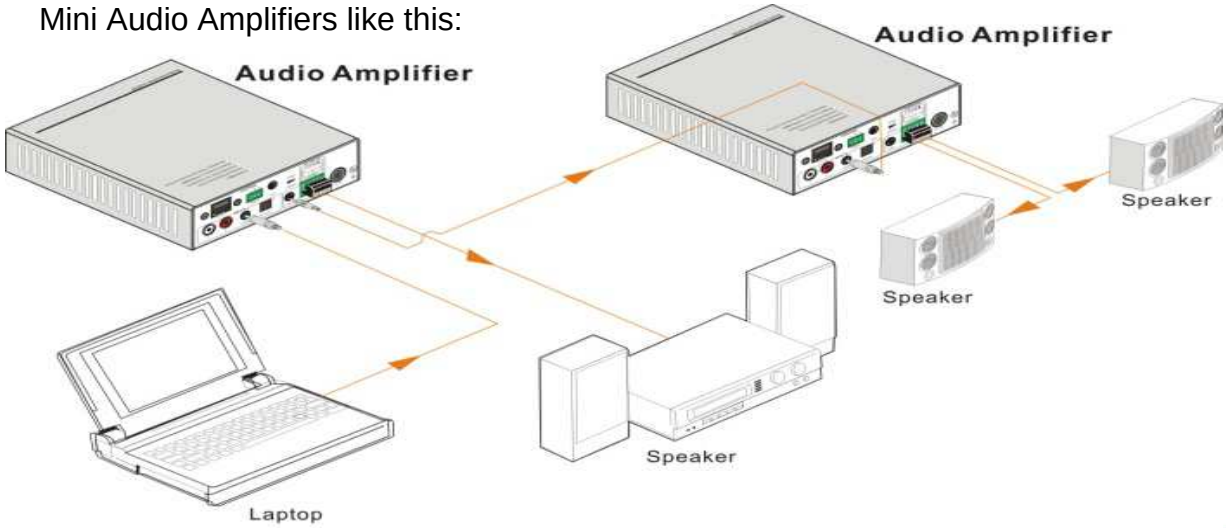
4.5.2. Mono Output: 1x100Watt@4Ohm

To enable mono 1x100Watt@4Ohm output, dial the switcher to MONO, and connect output devices as per the figure below:



4.6. Loop Connection

The AVG-MA2 Mini Audio Amplifier boasts a LOOP port for audio signal loop output. A maximum of 255 units can be looped within the same operation system. Connect Mini Audio Amplifiers like this:



Then audio signal sent to the first Mini Audio Amplifier is cascaded to other connected Mini Audio Amplifiers, which enables multiple Mini Audio Amplifiers share the same audio source.

Note:

1. Audio loop output is available only when the 1st Mini Audio Amplifier selects analogue input 1 or 2 as the source.
2. Audio control operations are not available to looped audio signal.

5. System Operation

5.1. Front Panel Button Control

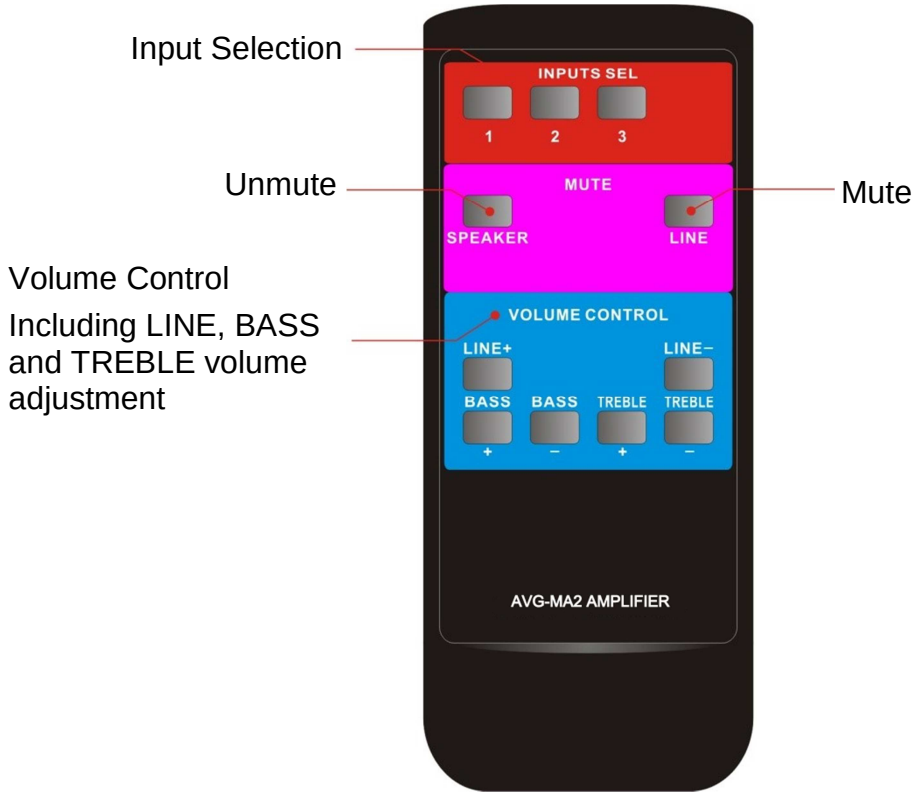
Front panel buttons provides direct audio control including input source selection and audio EQ adjustment.

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

No.	Name	Operation
①	Input selection	Illuminates red when powered on
②	Control (EQ management)	▪ Press button **INPUT SEL** to switch among the 3 inputs cyclically, 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
③	Volume Knob	▪ Clockwise Rotation: Volume up ▪ Counterclockwise Rotation: Volume down
④	About the Volume Bar	Volume bar indicates real-time volume level, 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

5.2. IR Control

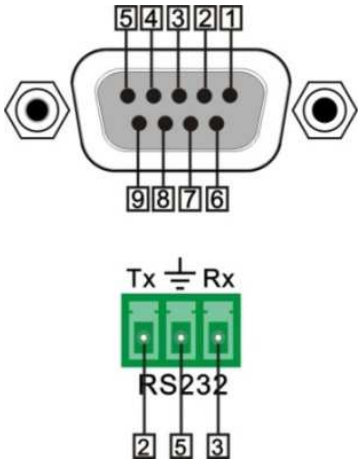
Connect an IR receiver (5V, without carrier) to IR IN port on the rear panel, users are able to control the amplifier using the included IR remote (see as below):



5.3. RS232 Control

5.3.1. Connection with the RS232 Communication Port

The AVG-MA2 Mini Audio Amplifier 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 the AVG-MA2 Mini Audio Amplifier to the control device (e.g. a PC) with a RS232 cable and set the communication parameters, the control device is then able to control the Mini Audio Amplifier via control software.

5.3.2. Installation/Removal of RS232 Control Software

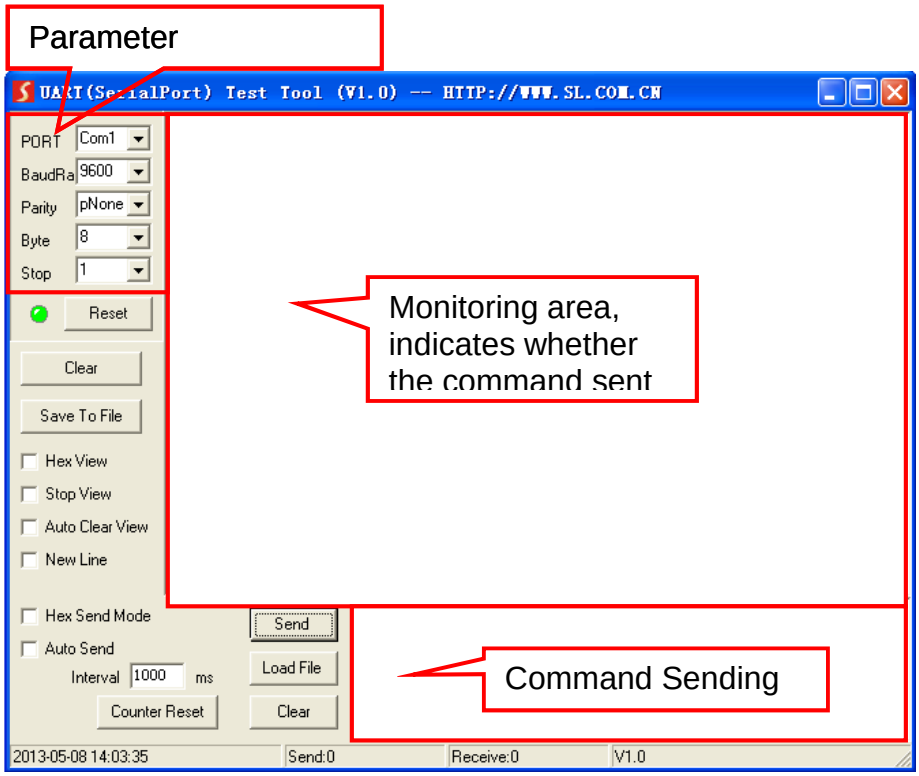
- **Installation** Copy the control software file to the computer connected with the Matrix.
- **Removal** Delete all the control software files in corresponding file path.

5.3.3. Basic Settings

Firstly, connect the AVG-MA2 with an input device and an output device. Then, connect it with a computer which has installed 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:

The interface of the control software is shown below:



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

TCP/IP Control. RS232 Communication Commands

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

Command	Function	Feedback Example
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%	Query 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

5.4. TCP/IP Control

The AVG-MA2 Mini Audio Amplifier 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.

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

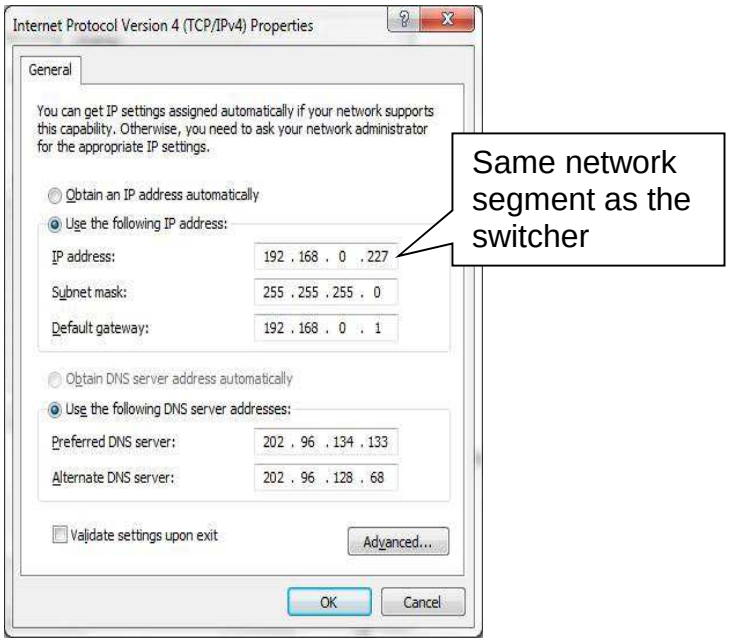
Connect the ethernet port of the control device and TCP/IP port of Mini Audio Amplifier, and set same network subnet for the 2 devices, users are able to control the device via a web-based GUI or TCP/IP communication software.

5.4.1. Control Modes

The AVG-MA2 Mini Audio Amplifier can be controlled by PC without Ethernet access or PC(s) within a LAN.

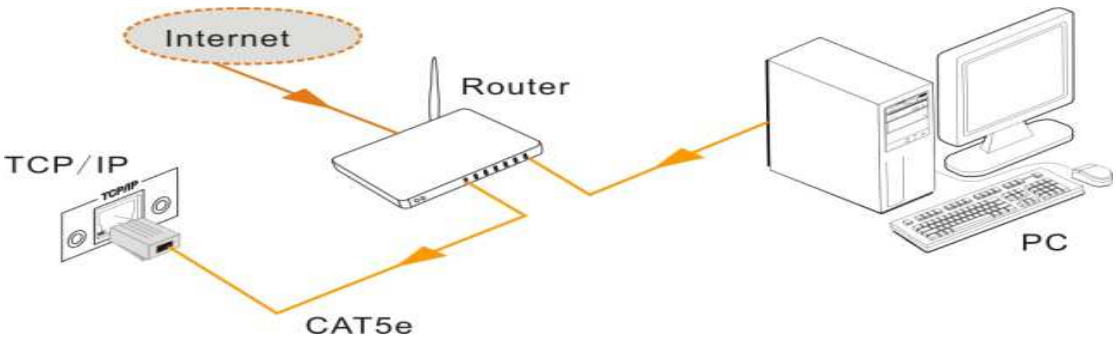
- **Controlled by PC without ethernet access**

Connect a computer to the TCP/IP port of the 4K HDBaseT 8x8 Matrix Switcher, and set its network subnet to the same as the 4K HDBaseT 8x8 Matrix Switcher's.



- **Controlled by PC(s) in LAN**

Connect Mini Audio Amplifier, a router and several PCs to setup a LAN (as shown in the following figure). Set the network subnet of the Mini Audio Amplifier to the same as the router's, then PCs within the LAN are able to control Mini Audio Amplifier.



Follow these steps to connect the devices:

Step 1. Connect the TCP/IP port of the Mini Audio Amplifier to Ethernet port of PC with straight-thru CAT5e/6.

Step 2. Set the PC's network subnet to the same as the Mini Audio Amplifier's.

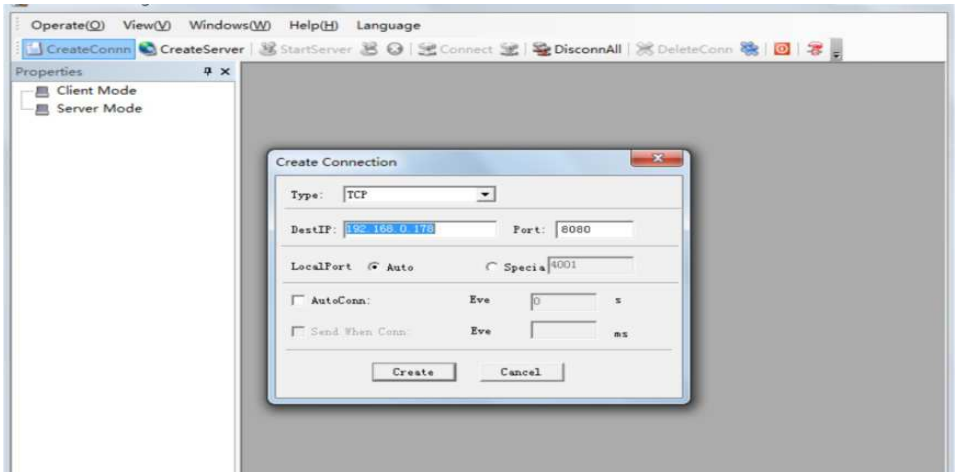
Step 3. Set the Mini Audio Amplifier's network subnet to the same as the router.

Step 4. Set the PC's network subnet to the original setting.

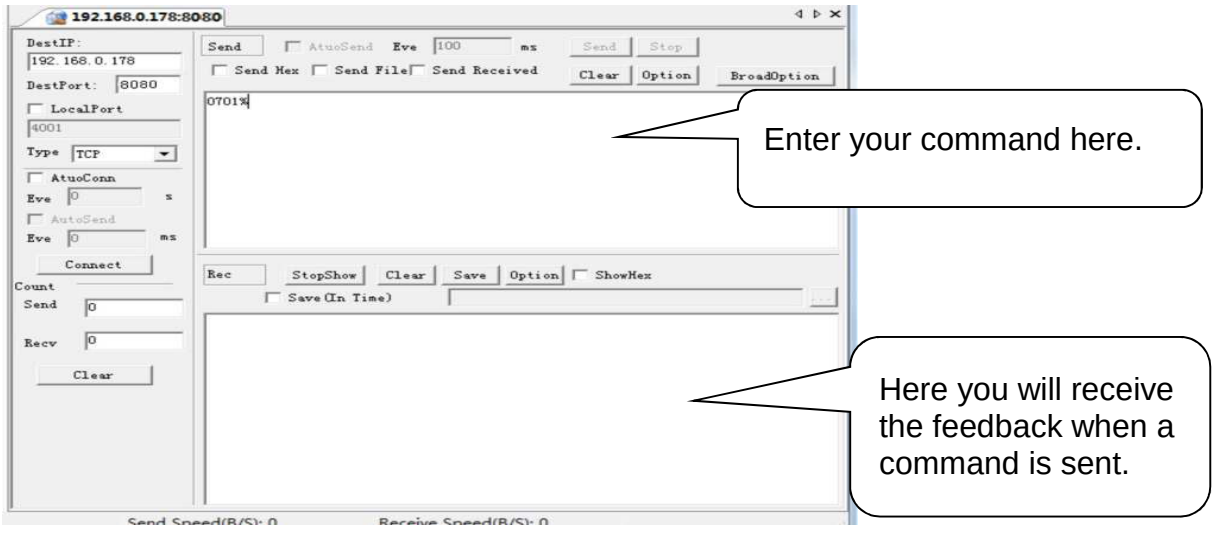
Step 5. Connect the Mini Audio Amplifier and PC(s) to the router. PC(s) within the LAN are able to control the Mini Audio Amplifier asynchronously.

5.4.2. Control via TCP/IP Communication Software

1. Connect a computer and the AVG-MA2 Mini Audio Amplifier 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 AVG-MA2 Mini Audio Amplifier (default IP: 192.168.0.178, port:8080):



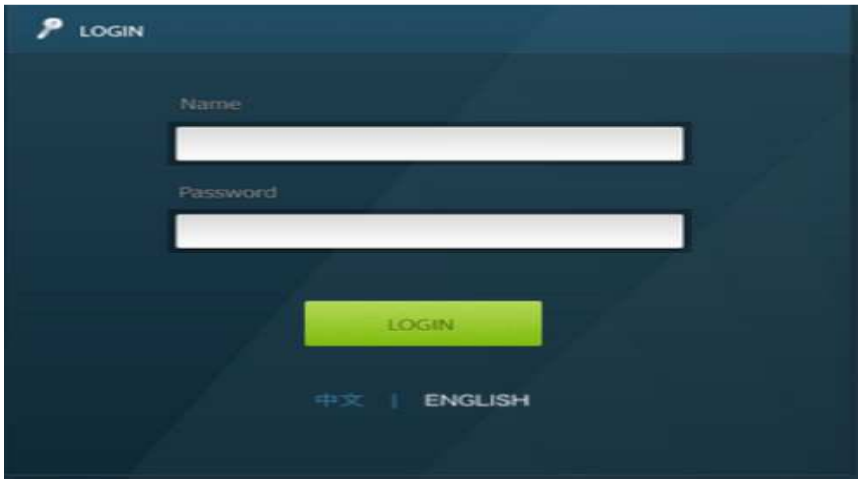
2. After connecting successfully, we can enter commands to control the AVG-MA2 Mini Audio Amplifier, as below:



5.4.3. GUI for TCP/IP Control

The AVG-MA2 Mini Audio Amplifier comes with a built-in GUI for convenient TCP/IP control. GUI allows users to interact with the Mini Audio Amplifier through graphical icons and visual indicators.

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



Type in the username and password**:**

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

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

Audio Selection:

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 the network configuration interface by clicking **NETWORK**

Network Configuration:

In this interface, you can:

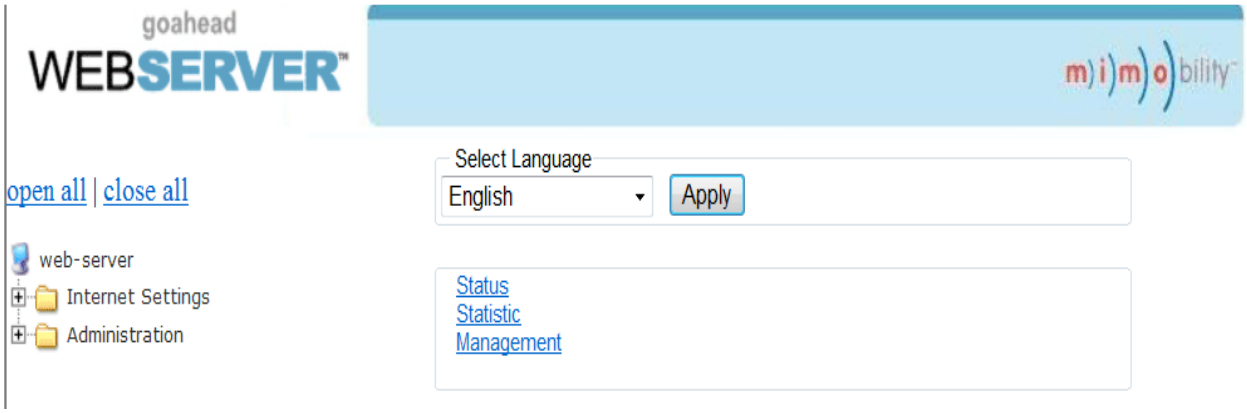
- Configure network settings:
  - IP: supports DHCP and Static IP, choose state by clicking the button
  - DHCP: IP Address, subnet mask and gateway are fixed in this mode
  - Static IP: set IP Address, subnet mask and gateway manually. Make sure the IP is different to the control device's
- Modify password: type in new password in the column, max at 5 numbers/ letters
- Query the 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 go back. Click **ADUIO SEL** to return to the NETWORK interface.

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

5.4.4. Port Management

Type the units address 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 into the WebServer:

Here is the main configuration interface of the WebServer:



In this interface, you can:

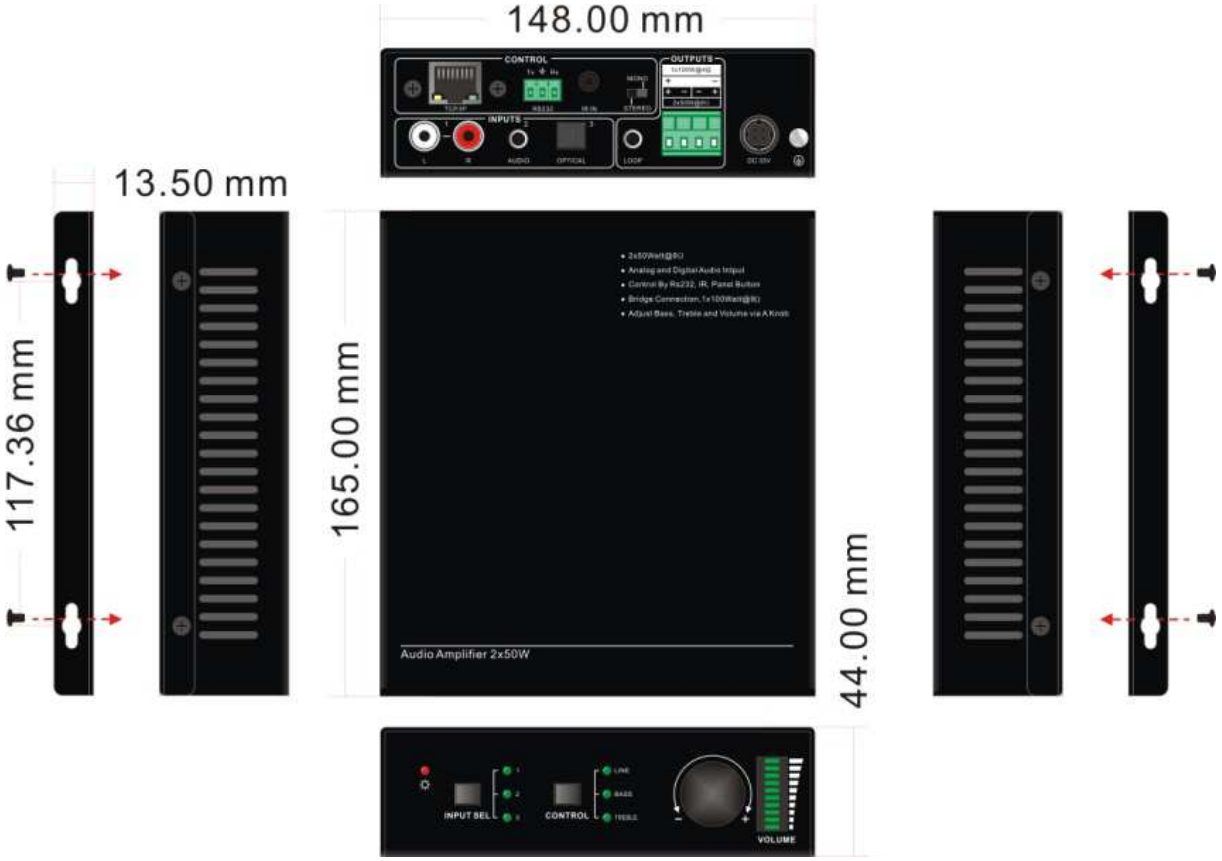
- Change website display language
- Modify network settings: Go to Internet Settings -> WAN
- Upgrade TCP/IP module: Go to Administration -> Upload Program -> Select program file -> Start upgrading. Reboot the device after upgrading.

6. 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%.

7. Panel Drawing



8. Troubleshooting & Maintenance

Problem	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 into the port or change to 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 is non-responsive	Not connected to power	Reconnect the power adapter.
	Loose or broken power cable	Replace the power cable.
No TCP/IP control	Control device and Mini Audio Amplifier are on different network subnet	Set the network subnet of control device to the same as the Mini Audio Amplifier's.
	Network subnet of Mini Audio Amplifier is different with LAN's.	Set the network subnet of Mini Audio Amplifier to the same with LAN's.
No RS232 control	Loose or broken RS232 connection	Reconnect the devices or change to another RS232 cable.
	Wrong command	Send the exact command listed in *4.3.3*.
	Wrong communication protocol settings	Set the protocol to: Baud rate: 9600; Data bit: 8; Stop bit: 1; Parity bit: none.
No IR control	Run out of battery	Change batteries.
	Exceeds effective control distance or angle	Adjust control distance and angle.
No loop output	No connected source at input 1 & 2 of the 1st Mini Audio Amplifier	Connect audio source to input 1 or 2 of the 1st Mini Audio Amplifier.
	Wrong input selection at the 1st Mini Audio Amplifier	Select input 1 or 2 at the 1st Mini Audio Amplifier