DVDO

DVDO-AA2x50W-1

2x50W Class-D Audio Amplifier with 3 Inputs & Volume Control

User Manual

Version v1.0

Preface Read this user manual carefully before using the product. Pictures are shown in this manual for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated till January, 2020. In the constant effort to improve the product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

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 ensure the best performance 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.

Table of Contents

1. Product Introduction

DVDO-AA2x50W-1 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.

1.1 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
- Supports GUI control.
- Power off memory.

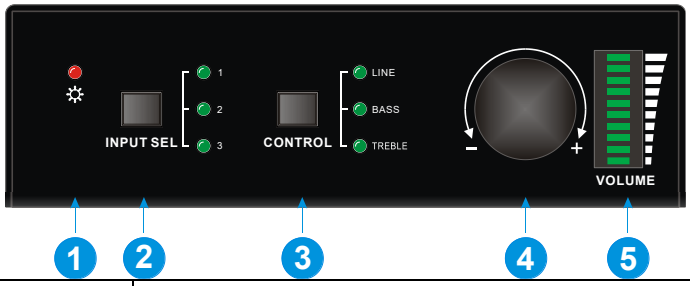
1.2 Package List

- 1x Mini Audio Amplifier
- 4x Plastic Cushions
- 1x IR Remote
- 1x 3-pin Terminal Block
- 1x User Manual
- 2x Mounting Ears with 4 Screws
- 1x Power Adapter (36V DC 2.7A)
- 1x IR Receiver
- 1 x 4-pin Terminal Block

Note: *Please contact your distributor immediately if any damage or defect in the components is found.*

2. Panel Description

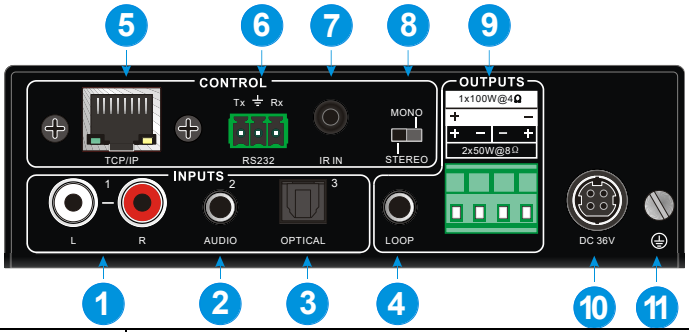
2.1 Front Panel



No.	Name	Description
1	Power LED	Illuminates red when powered on.
2	Input Selection	Press button to select the input audio source. Once selected, the corresponding LED will be lit. • 1 is for dual mono audio input (2 RCA connectors for L&R) • 2 is for stereo audio input (3.5mm mini jack) • 3 is for digital fiber audio input
3	Audio Control	Press this button to select the Line volume level or the Bass and Treble level. Once selected, use the Adjustment Knob to adjust level.
4	Volume Knob	• Rotate the knob to adjust audio levels. Volume bars will change accordingly. • Press the knob to mute/unmute the corresponding audio.
5	Volume Bar	Indicates real-time volume setting, 10 bars in total.

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



No.	Name	Description
1	Audio Input 1	2 x RCA L&R stereo audio inputs.
2	Audio Input 2	3.5mm mini jack for stereo audio input.
3	Audio Input 3	Optical connector for digital audio input.
4	Audio Loop Output	If a second amplifier is required, plug a 3.5 mm TRS to 3.5 mm TRS cable between the LOOP output and Input 2 of the second amplifier.
5	TCP/IP	RJ45 connector for TCP/IP control. For connection to local network for control via a control system or PC.
6	RS232	3-pin terminal block for serial control, it can be connected with control system (Use a 3-pin terminal block to 9 pin female D connector) to control the amplifier.
7	IR IN	3.5mm mini jack to connect IR receiver to control the amplifier by IR remote.
8	Output Mode Selector	2-pole switch for output mode selection. STEREO – 2x50W@8Ω. MONO – 1x100W@4Ω.
9	Audio Output	To connect with audio output devices, such as speakers (The connection type of speakers depends on the audio output mode: STEREO or MONO).
10	Power Port	To connect with the power adapter (36V DC).
11	GND	Ground Connection.

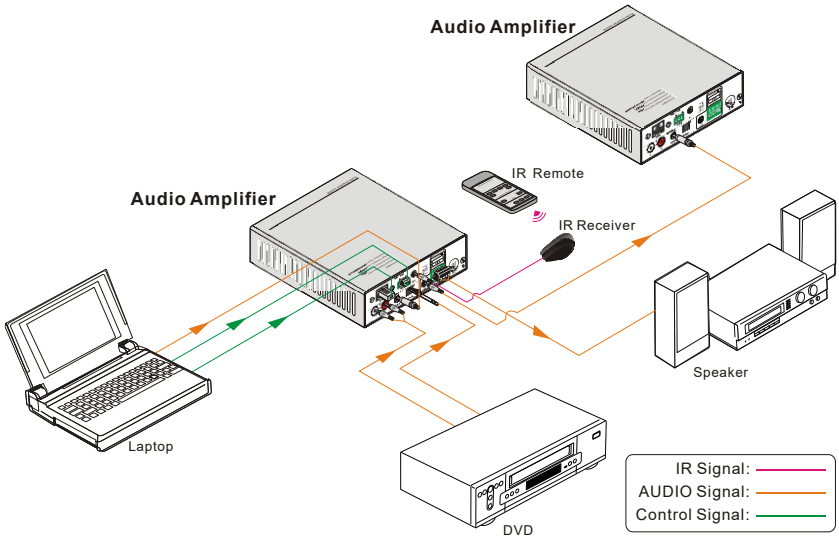
Note: *Dial the Channel Switcher to demand status before connecting output device. Once connected, do not try to change the status while it's working.*

3. System Connection

3.1 Usage Precaution

- Make sure all components and accessories included before installation.
- System should be installed in a clean environment with proper temperature and humidity.
- All of the power switches, plugs, sockets, and power cords should be insulated and safe.
- All devices should be connected before power on.

3.2 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.

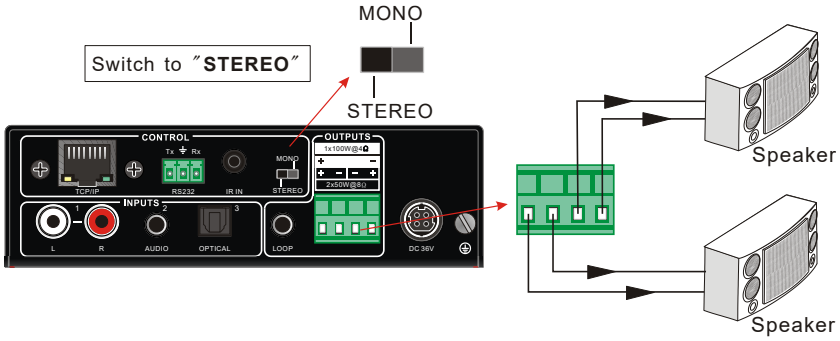
Step5. (optional) Connect a control device (e.g. a PC) to **TCP/IP** port to enable IP control.

Step6. Plug 36V DC power adaptor to the power port.

3.4 Audio Output Connection

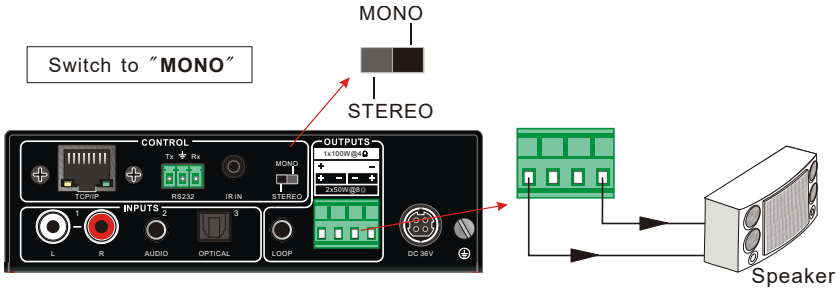
3.4.1 Stereo Output (default): 2x50Watt@8Ohm

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



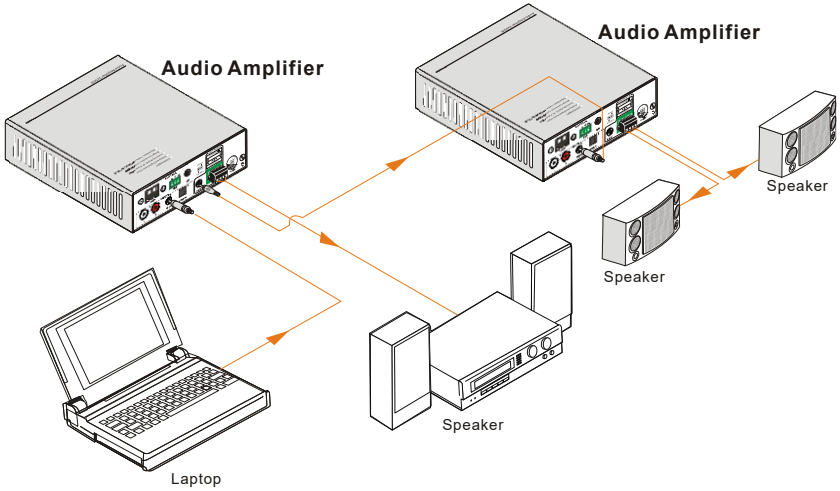
3.4.2 Mono Output: 1x100Watt@4Ohm

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



3.5 Loop Connection

The amplifier boasts a LOOP port for audio signal loop output, max 255 units can be looped within the same operation system. Connect the amplifier like this:



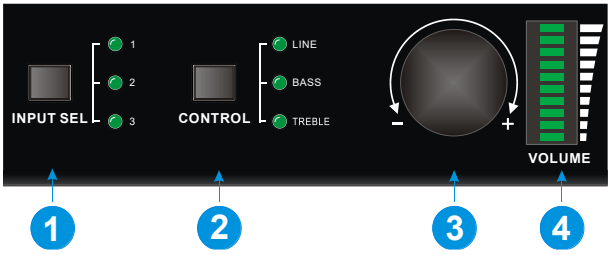
Then audio signal sent to the first amplifier is cascaded to other connected amplifier, which enables multiple amplifier share the same audio source.

Note:

- *Audio loop output is available only when the 1st amplifier select input 1/2 as source.*
- *Audio control operations are not available to looped audio signal.*

4. Button Control

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



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

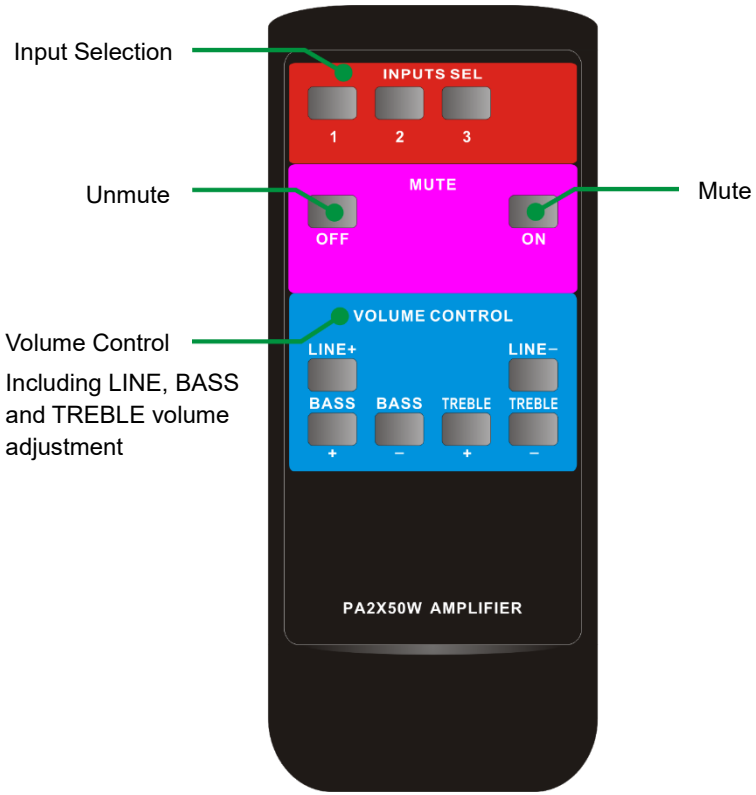
- **About the Volume Bar (area ④):**

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

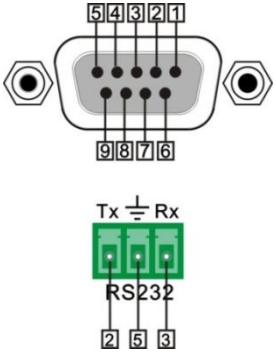
5. IR Control

Connect an IR receiver to the **IR IN** port on the rear panel, users are able to control the amplifier by the included IR remote (see as below):



6. RS232 Control

The 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 amplifier 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 the amplifier via designed software.

6.1 RS232 Control Software

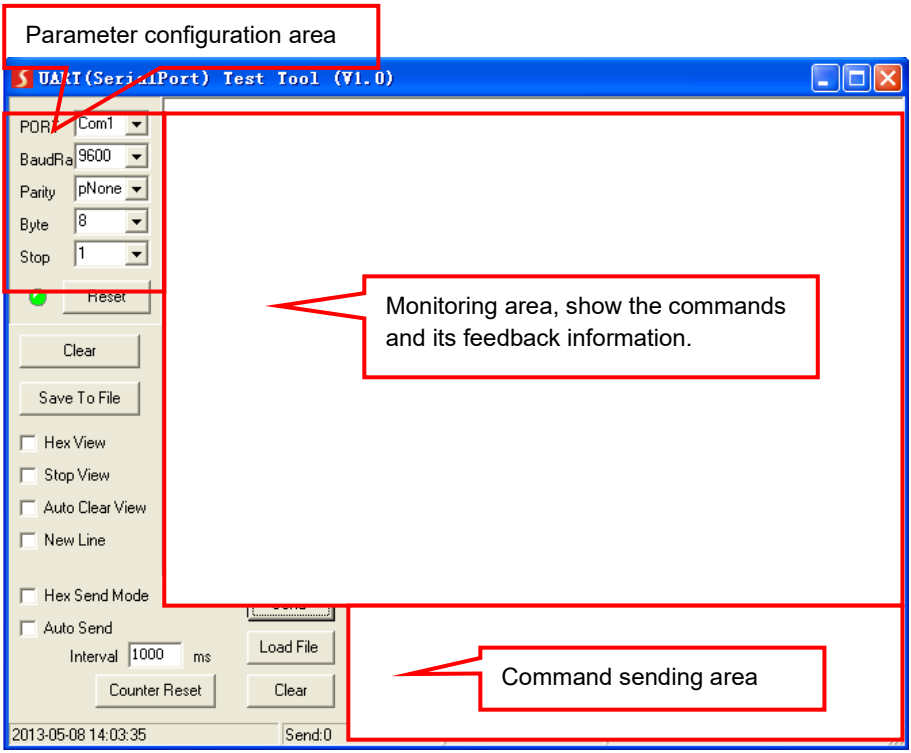
- **Installation:** Copy the control software file to the control PC.
- **Uninstallation:** Delete all the control software files in corresponding file path.

Basic Settings:

Connect the amplifier 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 interface of the control software is showed as below:



Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, then the RS232 commands can be sent in Command Sending Area.

Baud rate: Supports 2400, 4800, 9600, 19200, 38400, 57600 and 115200.

Data bit: 8;

Stop bit: 1;

Parity bit: none.

6.2 RS232 Command

Note:

- *Case-sensitive.*
- *"[", "]" in the commands are only for easy recognition and not necessary in real operations. Other symbols including "." "%" are parts of the commands.*
- *Feedbacks listed in the column "Feedback" are only for reference, feedbacks may vary according to different operations.*

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

Command	Description	Feedback
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

7. TCP/IP Control

The 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.

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

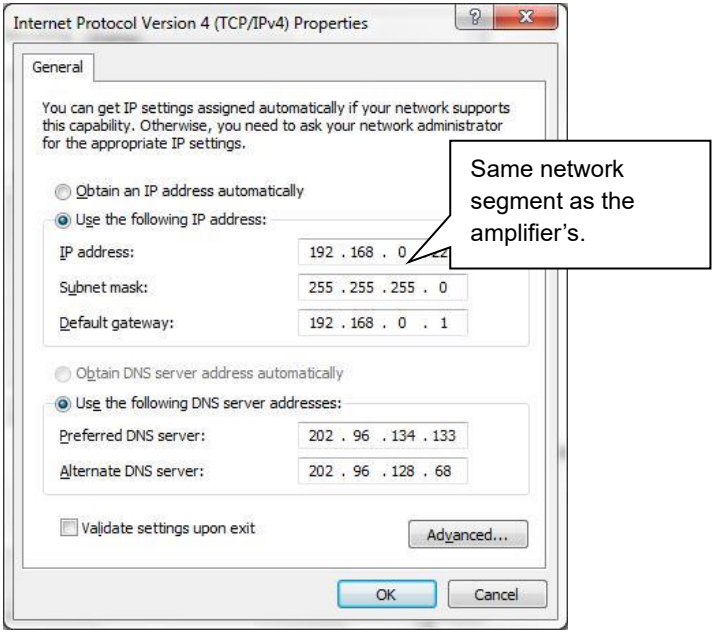
Connect the Ethernet port of control device and TCP/IP port and set same network segment for the 2 devices, users are able to control the device via GUI or designed TCP/IP communication software.

7.1 Control Mode

The amplifier can be controlled by PC without Ethernet access or PC(s) within a LAN.

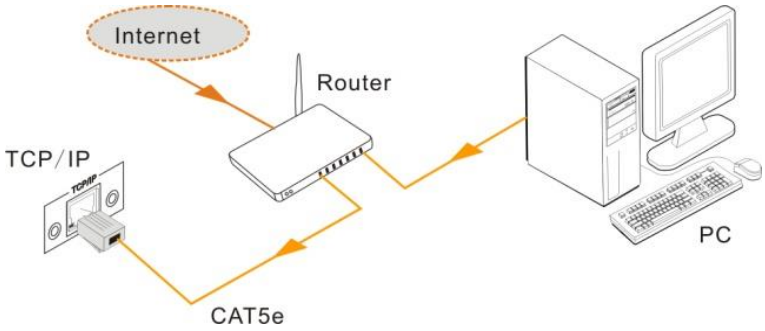
- **Controlled by PC without Ethernet access**

Connect a computer to the TCP/IP port of the amplifier, and set its network segment to the same as the amplifier's.



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

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



Follow these steps to connect the devices:

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

Step2. Set the PC's network segment to the same as the amplifier's.

Step3. Set the amplifier's network segment to the same as the router.

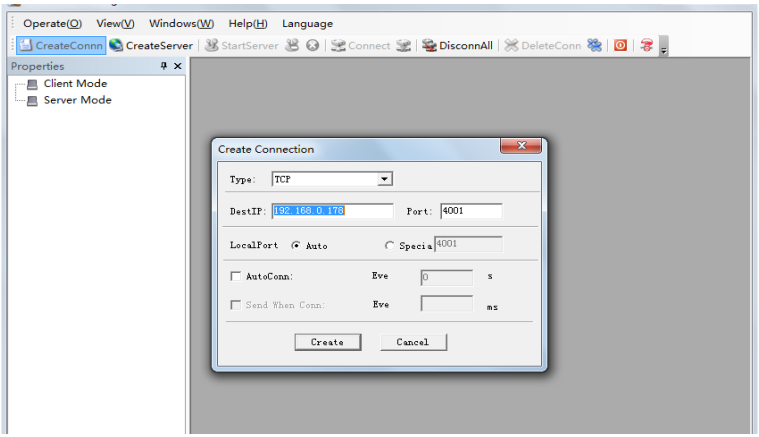
Step4. Set the PC's network segment to the original ones.

Step5. Connect the amplifier and PC(s) to the router. PC(s) within the LAN is able to control the amplifier asynchronously.

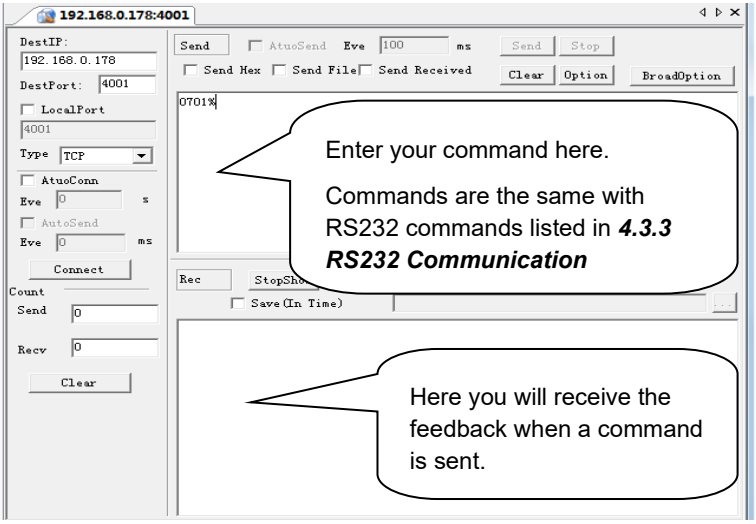
7.2 TCP/IP Communication Software

(Exampled by TCPUDP software)

1) Connect a computer and the 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 the amplifier (default IP: 192.168.0.178, port:4001):



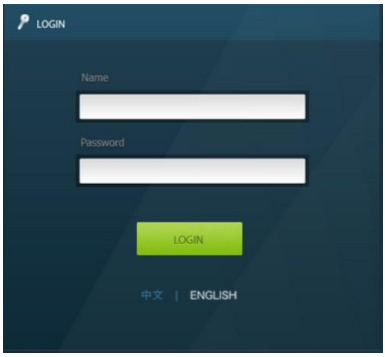
2) After connect successfully, we can enter commands to control the amplifier, as below:



7.3 GUI Control

The amplifier provides with built-in GUI for convenient TCP/IP control. GUI allows users to interact with the amplifier 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:



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:

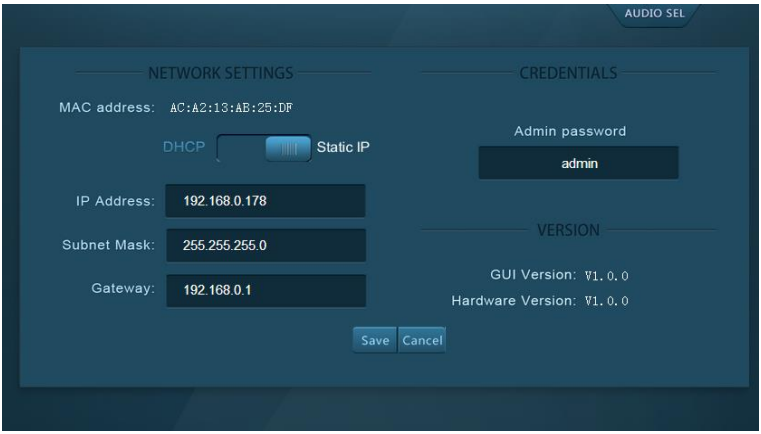
Audio Selection:

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:



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**

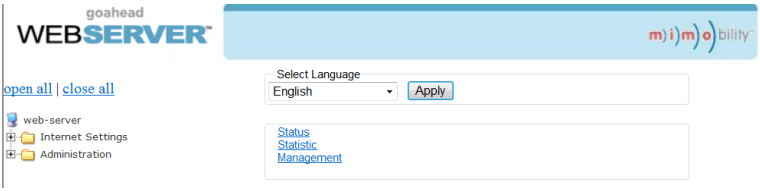
If there is any modification in this interface, press **Save** to restore the settings, or press **Cancel** to withdraw. Click **ADUIO SEL** to return to NETWORK interface.

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

7.4 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:



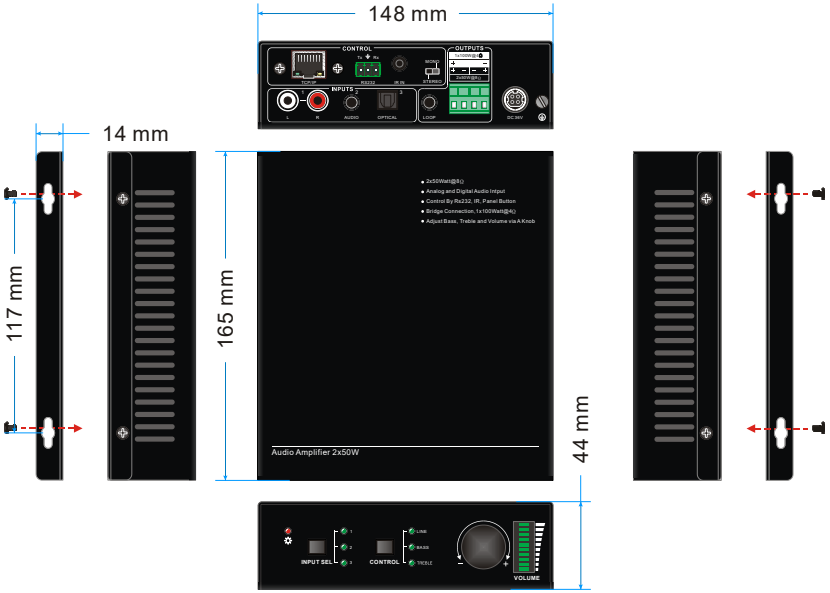
In this interface, you can:

- 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.

8. Technical Specification

Input	
Input Signal	(1) L+R stereo audio, (1) 3.5mm analog audio (1) Optical fiber audio
Input Connector	(2) RCA, (1) 3.5mm mini jack, (1) SPDIF
Input Impedance	>10KΩ
Output	
Output Signal	(1) LOOP, (2) Stereo audio, (1) Mono audio
Connectors	(1) 3.5mm jack, (1) 4-pin 5.08mm connector
Damping coefficient	>100
Control	
Control	(1) RS232, (1) IR IN, (1) TCP/IP
Control Connector	(1) 3-pin terminal block, (1) 3.5mm mini jack (1) Female RJ45
General	
SNR	80dB
THD+ Noise	1%@1KHz 50W
Separation	75dB 20Hz～20KHz
Damping coefficient	>100
Voltage Gain	32dB
Output Power	100W@4Ω/2×50W@8Ω
Power Supply	36V DC 2.7A
Power Consumption	1.48w (Max)
Operation Temperature	-10℃ ~ +55℃
Storage Temperature	-25℃ ~ +70℃
Relative Humility	10%-90%
Dimensions (W*H*D)	148mm x44mm x165 mm
Net Weight	About 720g

9. Panel Drawing



10. Troubleshooting & Maintenance

Problem	Possible Causes	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 the amplifier are on different network segment.	Set the network segment of control device to the same with the amplifier's.
	Network segment of the amplifier is different with LAN's.	Set the network segment of the amplifier 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 the amplifier.	Connect audio source to input 1 or 2 of the 1st the amplifier.
	Wrong input selection at the 1st the amplifier.	Select input 1/2 at the 1st the amplifier.

Note: *If your problem still remaining after following the above troubleshooting steps, please contact your local dealer or distributor for further assistance*.

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