

# ALF-PA100W

## 2x 50 Watt Amplifier



## **Preface**

Read this user manual carefully before using this product. Pictures shown in this manual are 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. Any changes of functions and parameters will be informed separately. Please refer to the dealers for the latest details.

## **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 good ventilation to avoid damage caused by overheating
- 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

<b>1. Introduction</b> .....	<b>1</b>
1.1 Introduction to PA100W.....	1
1.2 Features .....	1
1.3 Package List.....	1
<b>2. Panel Description</b> .....	<b>2</b>
2.1 Front Panel.....	2
2.2 Rear Panel.....	4
<b>3. System Connection</b> .....	<b>5</b>
3.1 Usage Precautions .....	5
3.2 System Diagram .....	5
3.3 Connection Procedure.....	5
3.4 Audio Output Connection.....	6
3.4.1 Stereo output (default): 2x50Watt@8Ohm.....	6
3.4.2 Mono output: 1x100Watt@4Ohm .....	6
3.6 Application .....	7
<b>4. System Control</b> .....	<b>8</b>
4.1 Front Panel Button Control .....	8
4.2 IR Control .....	9
4.3 RS232 Control.....	10
4.3.1 Installation/uninstallation of RS232 Control Software.....	10
4.3.2 Basic Settings.....	10
4.3.3 RS232 Communication Commands .....	12
4.4 TCP/IP Control.....	13
4.4.1 Control Modes .....	13
4.4.2 Control via TCP/IP communication software.....	14
4.4.3 Control via web-based GUI .....	15
4.4.4 Port Management.....	17
<b>5. Specification</b> .....	<b>18</b>
<b>6. Panel Drawing</b> .....	<b>19</b>
<b>7. Troubleshooting &amp; Maintenance</b> .....	<b>20</b>
<b>8. After-sales Service</b> .....	<b>20</b>

# **1. Introduction**

## **1.1 Introduction to PA100W**


PA100W 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 2x50Watt@8Ohm or mono 1x100Watt@4Ohm 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 PA100W Amplifier | ✓ 2 x Detachable Mounting Ears                     |
| ✓ 4 x Screws           | ✓ 2 x Pluggable Terminal Blocks (1 3-pin& 1 4-pin) |
| ✓ 1 x IR Remote        | ✓ 1 x Power Adapter (DC 36V 2.66A)                 |
| ✓ 1 x User manual      | ✓ 1 x IR Receiver (5V, without carrier)            |

 Please confirm if the product and the accessories are all included, if not, please contact the dealers.

## 2. Panel Description

### 2.1 Front Panel

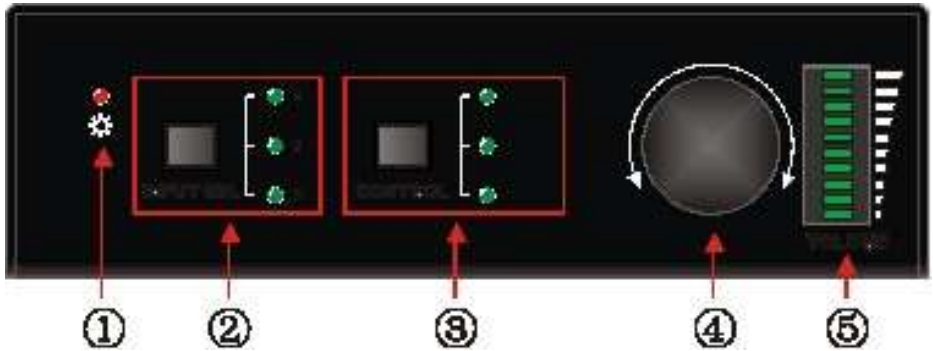


Figure 2- 1 Front Panel of PA100W

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	<ul style="list-style-type: none"> <li>● 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.</li> <li>● Rotate the knob to adjust volume, volume bars will change accordingly ➤ Clockwise Rotation: Volume up ➤ Anticlockwise Rotation: Volume down</li> </ul>
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

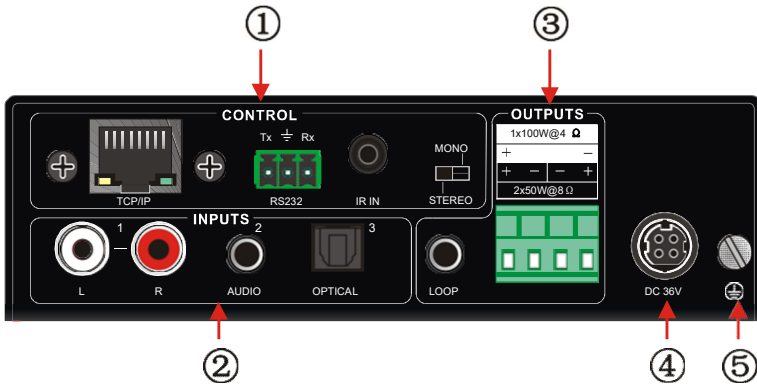


Figure 2- 2 Rear Panel of PA100W

No.	Name	Description
①	CONTROL	<b>TCP/IP:</b> (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
		<b>RS232:</b> connect with control device to enable serial control
		<b>IR IN:</b> connect with IR receiver to collect infrade signal
		<b>Channel Switcher:</b> 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	<b>LOOP:</b> analog audio loop output port, available only when input signal is L+R stereo audio
		<b>Audio Output:</b> including stereo audio (2x50W@8 Ω ), or mono output (1x100W@4 Ω )
④	DC 36V	Insert DC 36V 2.66A 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 with proper temperature and humidity control
- 2) All of the power switches, plugs, sockets and power cords should be insulated for safety.
- 3) All devices should be connected before powered on.
- 4) Use straight-thru Cat5e/Cat6 with TIA/EIA T568B terminations to connect TCP/IP port.

#### 3.2 System Diagram

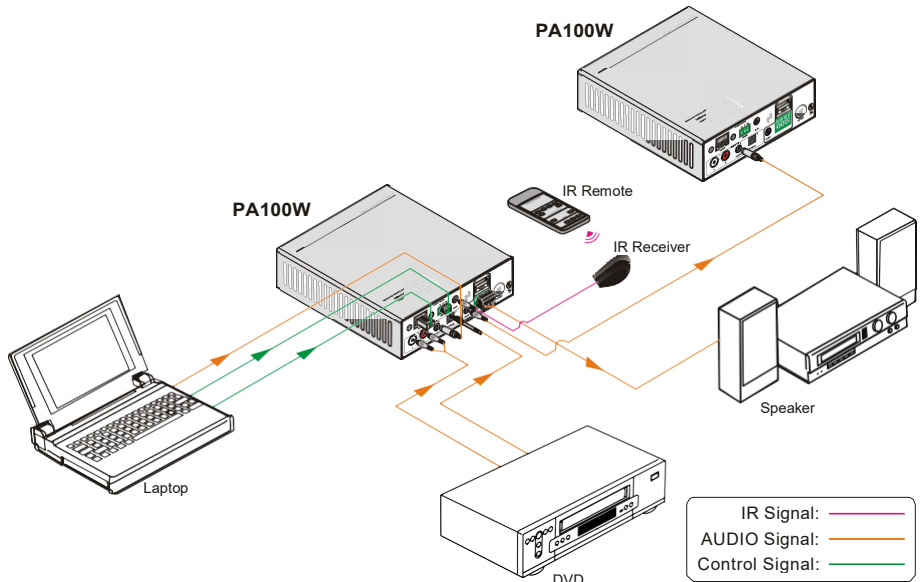


Figure 3- 1 System Diagram

#### 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.

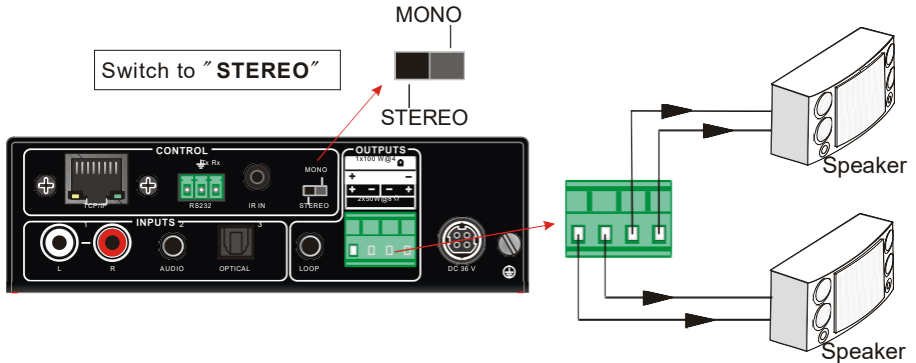
**Step5.** (optional) Connect a control device (e.g. a PC) to **TCP/IP** port to enable IP control.

**Step6.** Plug DC 36V power adaptor to the power port of PA100W.

### 3.4 Audio Output Connection

#### 3.4.1 Stereo output (default): 2x50Watt@80hm

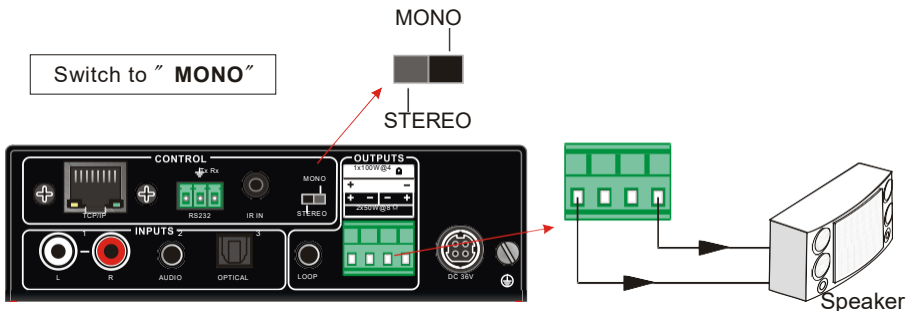
Dial the switcher to STEREO to enable 2 50Watt@80hm stereo output mode. Connect the amplifier regularly (as shown in the following figure):



**Figure 3- 2 Stereo Output Connection**

#### 3.4.2 Mono output: 1x100Watt@40hm

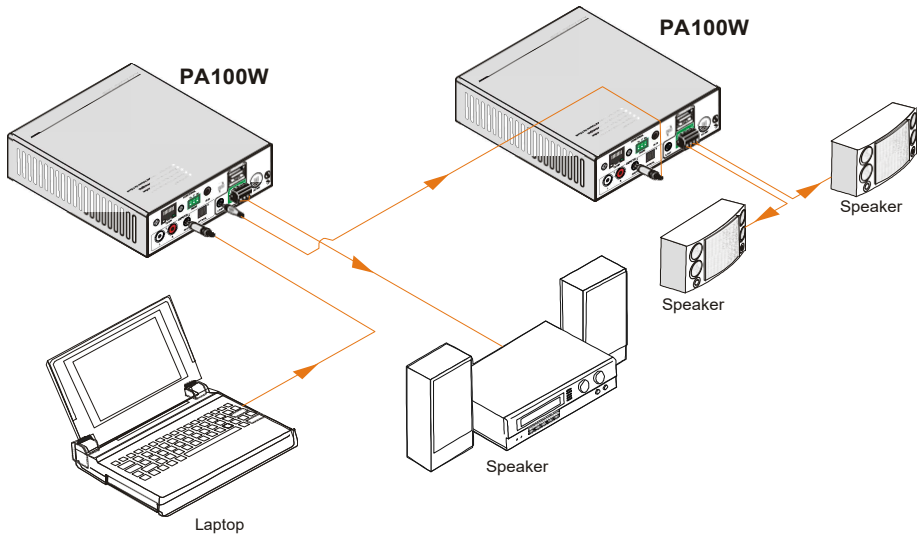
To enable mono 1x100Watt@40hm output, dial the switcher to MONO, and connect output devices as the figure below:



**Figure 3- 3 Mono Output Connection**

### 3.5 Loop Connection

PA100W boasts a LOOP port for audio signal loop output, max 255 units can be looped within the same operation system. Connect PA100W like this:



**Figure 3- 4 Loop Connection**

Then audio signal sent to the first PA100W is cascaded to other connected PA100W, which enables multiple PA100W share the same audio source.



1. Audio loop output is available only when the 1<sup>st</sup> PA100W select input 1/2 as source.
2. Audio control operations are not available to looped audio signal.

### 3.6 Application

PA100W 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 cycle, 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

### 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):

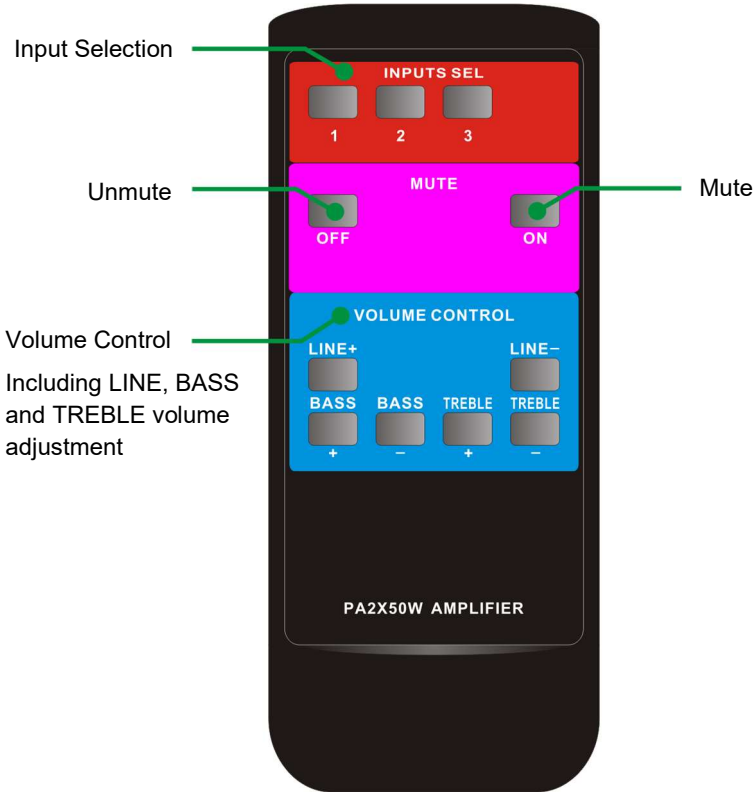
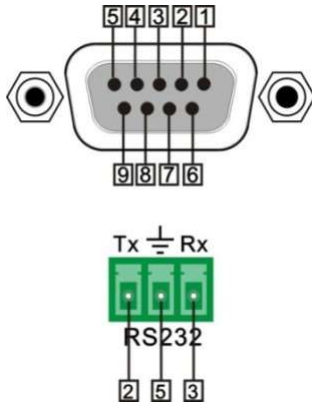


Figure 4- 2 IR Remote

### 4.3 RS232 Control

PA100W 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 PA100W to the control device (e.g. a PC) with RS232 cable and set the parameters in the right manner, the control device is able to control PA100W via designed software.

#### 4.3.1 Installation/uninstallation of RS232 Control Software

**Installation:** Copy the control software file to the computer connected to the PA100W.

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

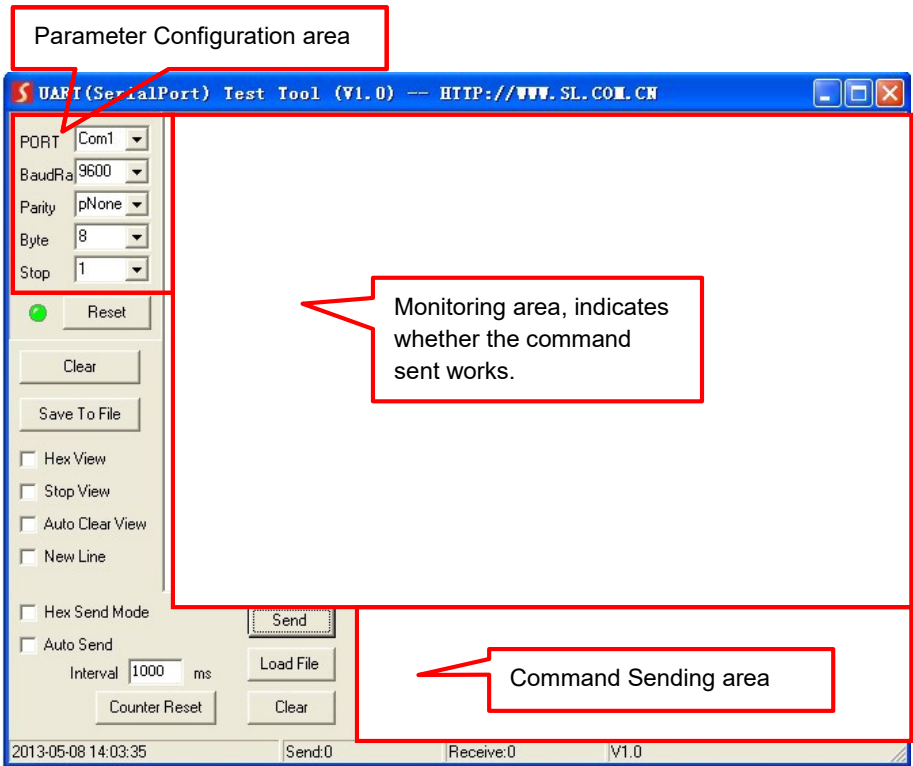
#### 4.3.2 Basic Settings

Firstly, connect PA100W to an input device and an output device. Then, connect it to 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:



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, only then will you be able to send command in Command Sending Area.

**4.3.3 RS232 Communication Commands**



- 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.

<b>Command</b>	<b>Description</b>	<b>Feedback</b>
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**

The PA100W 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.

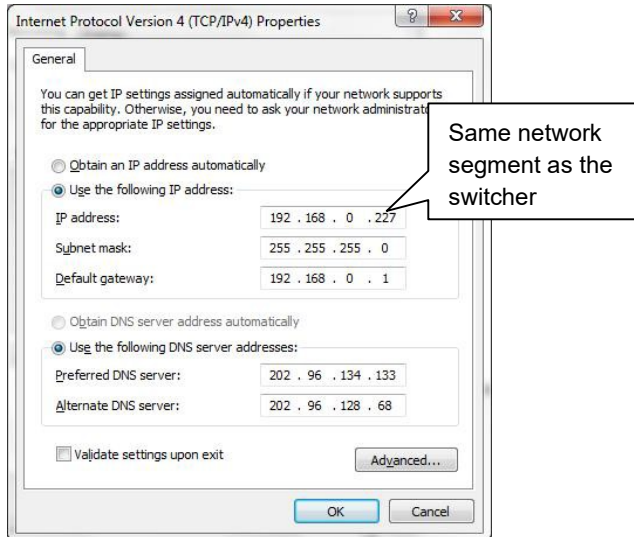
Connect the Ethernet port of control device and TCP/IP port of PA100W, and set same network segment for the 2 devices, users are able to control the device via web-based GUI or designed TCP/IP communication software.

**4.4.1 Control Modes**

PA100W can be controlled by PC without Ethernet access or PC(s) within a LAN.

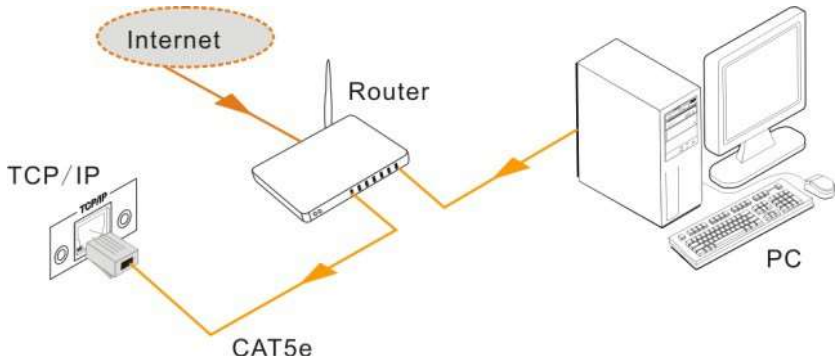
● **Controlled by PC without Ethernet access**

Connect a computer to the TCP/IP port of the PA100W, and set its network segment to the same as the PA100W.



● **Controlled by PC(s) in LAN**

Connect PA100W, a router and several PCs to setup a LAN (as shown in the following figure). Set the network segment of PA100W to the same as the router's, then PCs within the LAN are able to control the PA100W Amplifier.



Follow these steps to connect the devices:

**Step1.** Connect the TCP/IP port of the PA100W to Ethernet port of PC with straight-thru CAT5e/6.

**Step2.** Set the PC's network segment to the same as the PA100W's.

**Step3.** Set the PA100W's network segment to the same as the router.

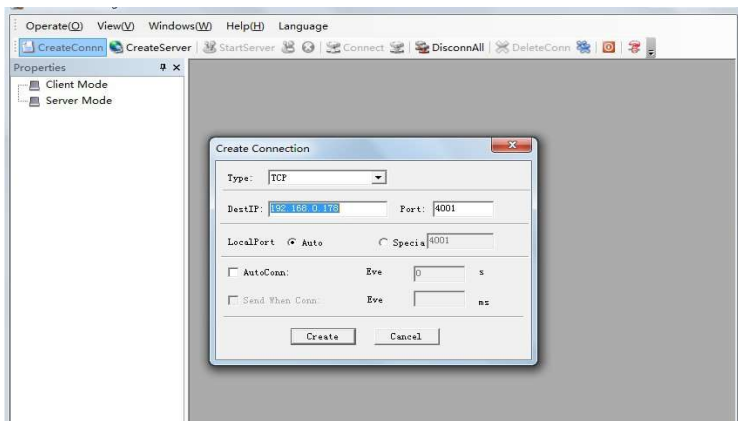
**Step4.** Set the PC's network segment to the original ones.

**Step5.** Connect the PA100W and PC(s) to the router. PC(s) within the LAN is able to control the PA100W asynchronously.

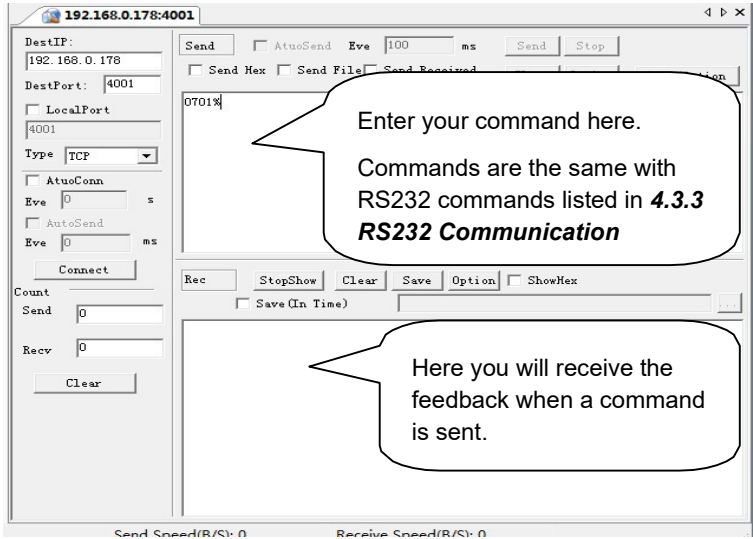
#### 4.4.2 Control via TCP/IP communication software

(Exemplified by TCPUDP software)

- 1) Connect a computer and PA100W 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 PA100W (default IP: 192.168.0.178, port:4001):



After connect successfully, we can enter commands to control the PA100W, as below:



#### 4.4.3 Control via web-based GUI

PA100W provides with built-in GUI for convenient TCP/IP control. GUI allows users to interact with PA100W 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:

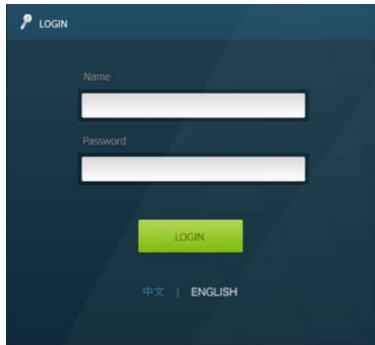


Figure 4- 3 Log-in interface

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 devices.
- 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:**

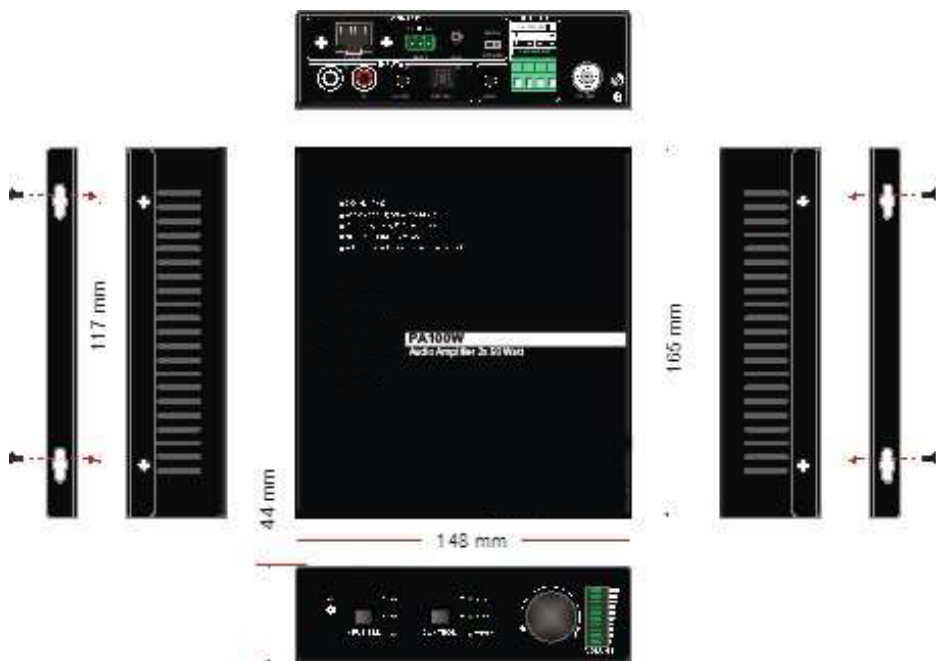
- Change website display language
- Modify network settings: Go to Internet Settings -> WAN
- Upgrade TCP/IP module: Go to Administration -> Upload Program -> Select program file -> Start upgrading  
Reboot the device after upgrading.

## 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	>10K $\Omega$	Damping coefficient	>100
<b>Control</b>			
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		
<b>General</b>			
SNR	80dB	THD+ Noise	1%@1KHz 50W
Separation	75dB 20Hz~20KHz	Damping coefficient	100
Voltage Gain	32dB	Output Power	1×100W@4 $\Omega$ /2×50W@8 $\Omega$
Power Supply	DC 36V 2.66A	Power Consumption	1.48W
Work Temperature	0~50 $^{\circ}$ C	Reference Humidity	10%~90%
Dimensions (W*H*D)	148 x44 x165 mm	Weight	0.72kg

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

## 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 does not respond	Not switched on	Switch on the device
	Loose or broken power connection	Reconnect the power adapter.
Fail in TCP/IP control	Control device and PA100W are on different network segment	Set the network segment of control device to the same with PA100W's.
	Network segment of PA100W is different with LAN's.	Set the network segment of PA100W 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 1 <sup>st</sup> PA100W	Connect audio source to input 1 or 2 of the 1 <sup>st</sup> PA100W.
	Wrong input selection at the 1 <sup>st</sup> PA100W	Select input 1/2 at the 1 <sup>st</sup> PA100W

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



## **8. Warranty**

### **1. Limited warranty in respect of Products Only**

1.1 This limited warranty covers defects in materials and workmanship in this product.

1.2 Should warranty service be required, proof of purchase must be presented to the Company. The serial number on the product must be clearly visible and not have been tampered with in any way whatsoever.

1.3 This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by the Company to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover equipment enclosures, cables or accessories used in conjunction with this product.

This limited warranty does not cover the cost of normal maintenance. Failure of the product due to insufficient or improper maintenance is not covered.

1.4 The Company does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

1.5 Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

1.6 Unless otherwise specified, the goods are warranted in accordance with the manufacturer's product specific warranties against any defect attributable to faulty workmanship or materials, fair wear and tear being excluded.

1.7 This limited warranty only covers the cost of faulty goods and does not include the cost of labor and travel to return the goods to the Company's premises.

1.8 In the event of any improper maintenance, repair or service being carried out by any third persons during the warranty period without the Company's written authorization, the limited warranty shall be void.

1.9 A 7 (seven) year limited warranty is given on the aforesaid product where used correctly according to the Company's instructions, and only with the use of the Company's components.

1.10 The Company will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1.10.1 Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition.; or

1.10.2 Replace this product with a direct replacement or with a similar product deemed by the Company to perform substantially the same function as the original product; or

1.10.3 Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

1.11 The Company is not obligated to provide the Customer with a substitute unit during the limited warranty period or at any time thereafter.

1.12 If this product is returned to the Company this product must be insured during shipment, with the insurance and shipping charges prepaid by the Customer. If this product is returned uninsured, the Customer assumes all risks of loss or damage during shipment. The Company will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. The Company will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

1.13 Please be aware that the Company's products and components have not been tested with competitor's products and therefore the Company cannot warrant products and/or components used in conjunction with competitor's products.

1.14 The appropriateness of the goods for the purpose intended is only warranted to the extent that the goods are used in accordance with the Company's installation, classification and usage instructions.

1.15 Any claim by the Customer which is based on any defect in the quality or condition of the goods or their failure to correspond with specification shall be notified in writing to the Company within 7 days of deliver or (where the defect or failure was not apparent on reasonable inspection by the Customer) within a reasonable time after discovery of the defect or failure, but, in any event, within 6 months of delivery.

1.16 If delivery is not refused, and the Customer does not notify the Company accordingly, the Customer may not reject the goods and the Company shall have no liability and the Customer shall pay the price as if the goods had been delivered in accordance with the Agreement.

1.17 THE MAXIMUM LIABILITY OF THE COMPANY UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT