X–AMP
INTELLIGENT AMPLIFIER

XA–300.2 AMPLIFIER INSTALLATION GUIDE

ENEWAVE Inc

Installation guide

1, Packing list

- 1 XA–300.2 Intelligent amplifier
- 1 installation Guide
- 1 IEC rated power cord
- 1 set of cabinet mounting accessories and screws
- 1 set of male phoenix plugs
- 1 certificate of conformity

2, Technical support

In order to ensure that the software you are using is the latest version, the software is not included in the package, please visit the official website of global.enewave.com to download the latest version of the control software EDMS and the software instruction manual.

You can contact the regional after–sales service to obtain the latest version of EDMS software and software manuals and related technical support. For contact information, please refer to the contact information on the website.

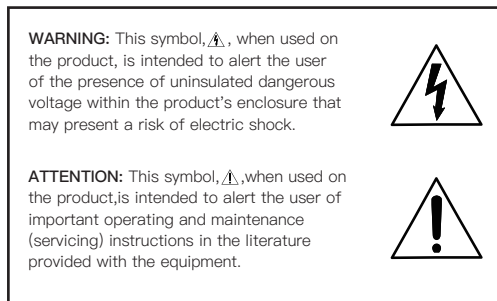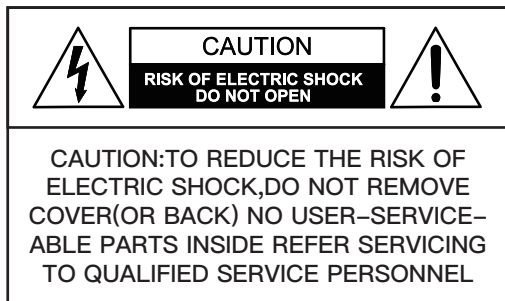- Technical support email：support@enewave.com

Caution

1. Please read the guide carefully before installing and operating the device.
2. Save this guide for future reference.
3. Remember and follow all safety instructions.
4. Follow all steps.
5. Please place the device away from the water source.
6. When cleaning, please unplug the power plug, and then use a dry cloth to clean the device.
7. Make sure that the ventilation openings of the device are not blocked.
8. Please place the device away from heat sources.
9. The power supply needs to be grounded.
10. Prevent the power cord from being trampled or dragged.
11. Please use the accessories specified by the manufacturer.
12. Please place the device in a stable position.
13. Please unplug the power plug during thunderstorms or when not in use for a long time.
14. In case of failure, please consult or send it to professional technicians. Do not open the inside of the device for maintenance without authorization.
15. In order to prevent the risk of fire or electric shock, do not expose the device to rain and moisture.
16. Do not expose the device to dripping and splashing water or under a water container.

WARNING: In order to prevent electric shock, please do not open the cover without authorization to repair the machine unless you are a professional technician.

Shock identification： Remind that if the power supply of the device is not properly grounded, it may cause leakage and endanger personal safety.
Warning signs: Remind users to strictly follow the specified steps.

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┌─────────────────────────────────┐
│  ⚡     CAUTION          ⚠       │
│        RISK OF ELECTRIC SHOCK    │
│        DO NOT OPEN               │
│                                  │
│  CAUTION:TO REDUCE THE RISK OF   │
│  ELECTRIC SHOCK,DO NOT REMOVE    │
│  COVER(OR BACK) NO USER−SERVICE− │
│  ABLE PARTS INSIDE REFER SERVICING│
│  TO QUALIFIED SERVICE PERSONNEL  │
└─────────────────────────────────┘
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┌─────────────────────────────────┐
│ WARNING: This symbol, ⚠ , when   │
│ used on the product, is intended │
│ to alert the user of the presence│
│ of uninsulated dangerous voltage │
│ within the product's enclosure   │
│ that may present a risk of       │
│ electric shock.            ⚡     │
│                                  │
│ ATTENTION: This symbol, ⚠ ,when  │
│ used on the product,is intended  │
│ to alert the user of important   │
│ operating and maintenance        │
│ (servicing) instructions in the  │
│ literature provided with the     │
│ equipment.                  ⚠    │
└─────────────────────────────────┘
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When your product is discarded, please recycle all recyclable parts.
This symbol indicates that when the user finally wants to dispose of this product, it must be taken to a separate recycling facility for recovery and recycling. By disposing of this product separately from other household waste, you can reduce the amount of waste sent to incinerators or landfills, thereby preserving natural resources. This product must not be disposed of with other waste. Instead, it is the responsibility of the user to dispose of the used electrical and electronic equipment by handing it over to an approved waste disposal facility or to an ENEWAVE agent.
Please contact ENEWAVE or your local agent for information on recycling your used equipment.

3. Product overview

On behalf of all of you, Enewave Audio Design would like to greet you and thank you for purchasing our X−Series products.
Because the X−series intelligent power amplifier needs to be connected and controlled in real time through computer terminal equipment in addition to installation, so how to let users quickly master this technology has become the primary purpose of this guide.
If you have any suggestions or comments, please email: support@enewave.com for consultation, thank you.

XA−300.2 Intelligent Power amplifier overview

XA−300.2 is an intelligent digital power amplifier designed by X−AMP specifically for the AV integration market and based on the concept of the Internet of Things. It integrates various functions such as remote management, digital signal transmission, digital signal processing, E−Link bus, closed−loop control, etc. It can be managed and controlled through the cloud through its own software or with a third−party IoT management platform, making system integration more convenient. easy and convenient.
XA−300.2 adopts a small and compact appearance design. Through flexible combination, it can meet various installation methods such as cabinet installation, table bottom installation, wall installation, and machine back installation.
Various built−in sensing devices detect various states of power amplifiers and speakers in real time, and use closed−loop control to automatically adjust various parameters in real time, so that power amplifiers and speakers are always in the best working state.
Built−in powerful DSP function, up to 96 IIR filter resource pools of various forms, 1024−order FIR filter, 6 real−time sampling limiter controls, providing comprehensive control and protection for speakers and power amplifiers. The built−in Dynamic EQ can simulate the effect of equal loudness circuit (Loudness), which can automatically boost low−frequency and high−frequency signals when listening at low volume such as conference rooms or commercial spaces, so as to obtain better tone balance.
Class D power amplifiers with PFC technology provide high−efficiency output, effectively reduce energy consumption, reduce heat generation, and can automatically adapt to global operating voltages of 100V to 240V. The XA−300.2 power amplifier adopts multiple feedback control technology, and performs feedback control on multiple sampling of the power amplifier output filter coil, after the filter coil, and the current signal, which greatly enhances the power amplifier's control ability to the load, and can adapt to various complex load environments. Whether the load is resistive, capacitive, inductive or the superposition of several characteristic impedances. The applica−tion of variable oscillation modulation technology and multiple feedback control greatly improves the low−resistance load performance of the power amplifier, and the whole series supports 4 ohm load to work stably. And can be used as a constant voltage power amplifier with 100V output through bridge connection.
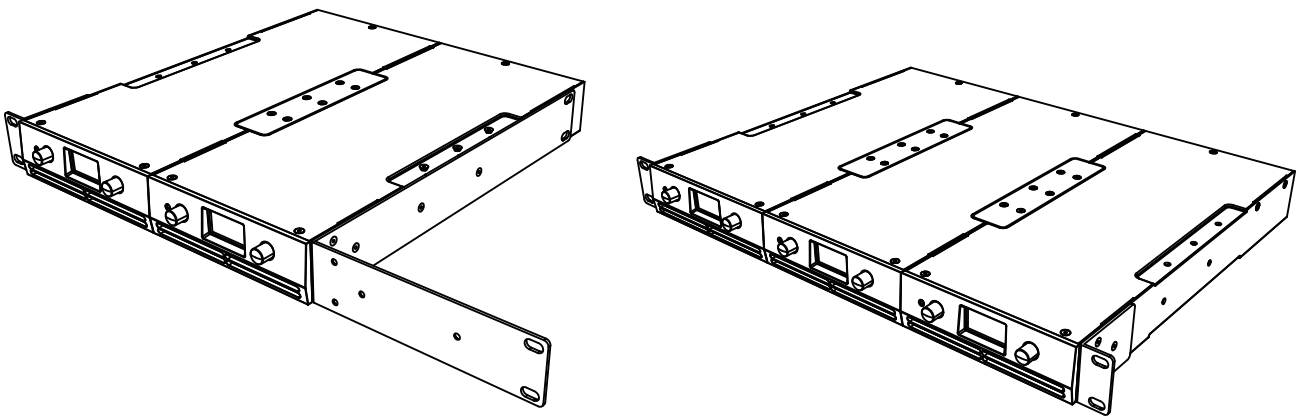Based on E−Link (Enewave Link Bus) bus technology and X−COM network protocol, it fully integrates LAN communication, RS−485 serial communication, and USB communication, making system connection and control very simple and convenient.
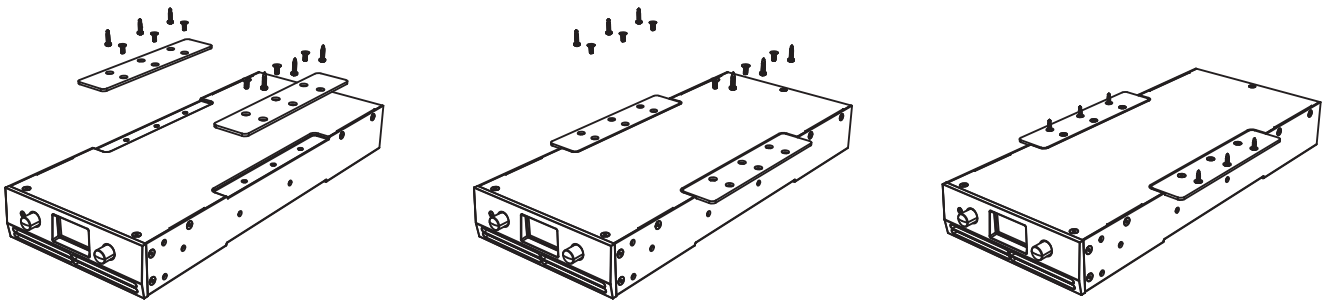
Install equipment

Install one unit in rack
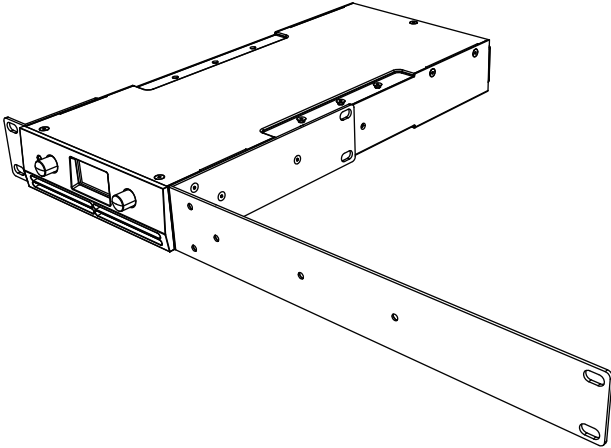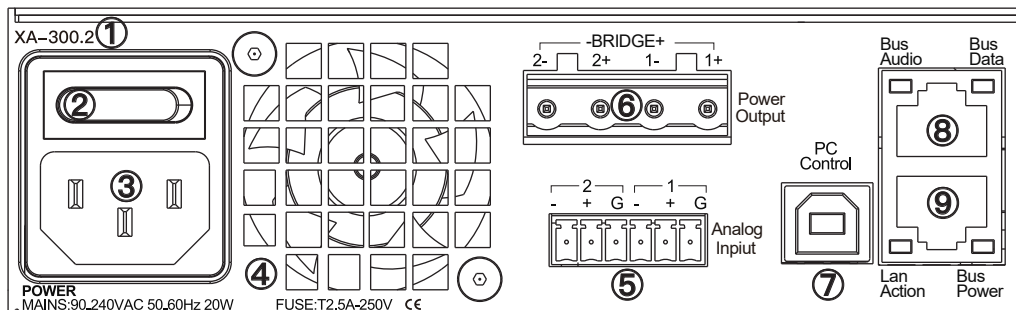
Installation of multiple splicing cabinets

Under–desk and wall–mounted installation

Wiring

Refer to the following guidelines for wiring connections

Rear panel

① Equipment model: XA–300.2.

② Power switch: Before the line is not connected, please make sure that the power is turned off.

③ Power input interface: Receives power (100–240 VAC, 50–60 Hz) from the detachable IEC power cable included in the package.

④ Intelligent temperature–sensing fan: It will turn on by itself according to the temperature.

⑤ Input interface (Phoenix): Signal balanced line input, please refer to the next section "Input Port Wiring" for the wiring method.

⑥ Output interface (Phoenix): power output port, the + and – polarities are marked on the top of the interface. For the wiring method, please refer to the next section "Output Port Wiring".

⑦ USB port: computer control/transmission port, using USB2.0 transmission protocol.

⑧ E–Link bus port (downlink): RJ–45 standard interface, with RS–485 *1 communication control protocol, digital audio transmission, POE power supply function, please use a shielded RJ–45 connector for wiring, network cable The cable requires shielding.

⑨ E–Link bus port (upstream): RJ–45 standard interface, 100/1000 Base–T Ethernet port of the host, with IP control and third–party control, digital audio transmission, PoE power supply functions. Please use a shielded RJ–45 connector for wiring, and the network cable requires shielding.

*1: RS 485 communication can be controlled by a third party, such as Crestron, AMX, PC, etc. The blue, white/blue cord in the network cable correspond to the + and – ports in the RS–485 protocol.

Input wiring

It is recommended to use off−the−shelf or professionally made balanced cables (with two shielded conductors). Balanced cables are more effective at suppressing noise than unbalanced cables.

Plug the cable's 6−pin male connector into the amplifier's input port. The amplifier model you have purchased has the corresponding number of input connectors (male).

Figure 4 is a schematic diagram of the assignment of each pin of the power amplifier input port when a balanced cable is used. FIG. 5 is a schematic diagram of the assignment of pins at the input end of the power amplifier when an unbalanced cable is used for connection.

Please note that if the bridge single−channel mode is used, or the 100V constant voltage output is used, the corresponding input channel only needs to be connected to the odd−numbered input channel.
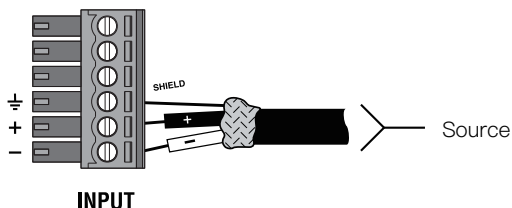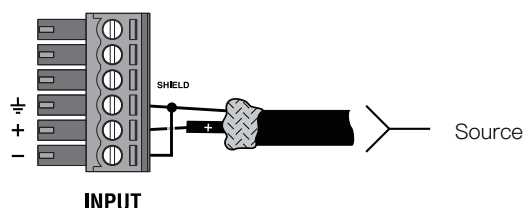
Figure 4: Balanced wiring

Figure 5: Unbalanced wiring

Output wiring

IMPORTANT: Before connecting speakers and starting the amplifier, make sure the amplifier is set to a reasonable output mode (low impedance, 70V, 100V). The amplifier defaults to low impedance output mode.

Before setting up the output connections, make sure the amplifier power cords are completely disconnected and double check the total impedance of all speakers at each output. If multiple speakers are connected to a low impedance mode output (ie, series, parallel, or series−parallel), ensure that the total system impedance is within the channel specification. If multiple speakers are connected to the high−impedance mode output, make sure that the total power is lower than the rated output power of that channel.

Be sure to use the output connection terminals included in the package for connec−tion. The machine interface is marked with positive and negative wiring ports, please make sure the polarity is correct.

It is recommended to use a sheathed speaker cable. When connecting to the output terminal, please ensure that there is enough contact surface between the cable and the terminal and press it tightly. At the same time, the exposed part of the cable should notexceed the terminal (it is recommended that the exposed wire length no more than 1cm). Please select the appropriate cable according to the rear end load for the speaker cable specification.
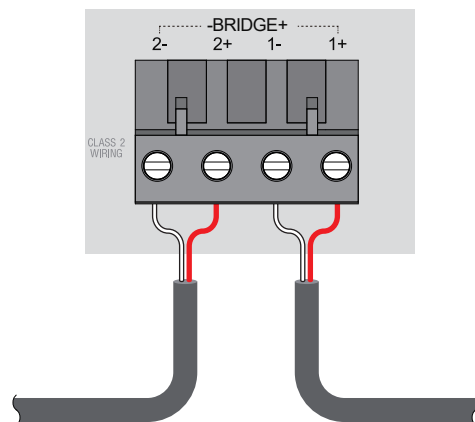
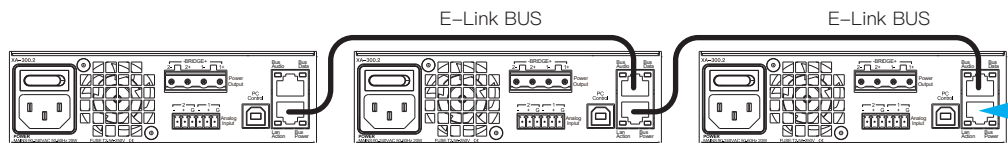⚠ Warning: It is strictly forbidden to connect shielded cables to the output ports.

⚠ Warning: It is strictly forbidden to connect the speakers back to the power amplifier equipment, otherwise the power amplifier may be damaged.

⚠ Note: Wiring operation must be completed by professionals.

Figure 6: Output port wiring

Digital audio transmission
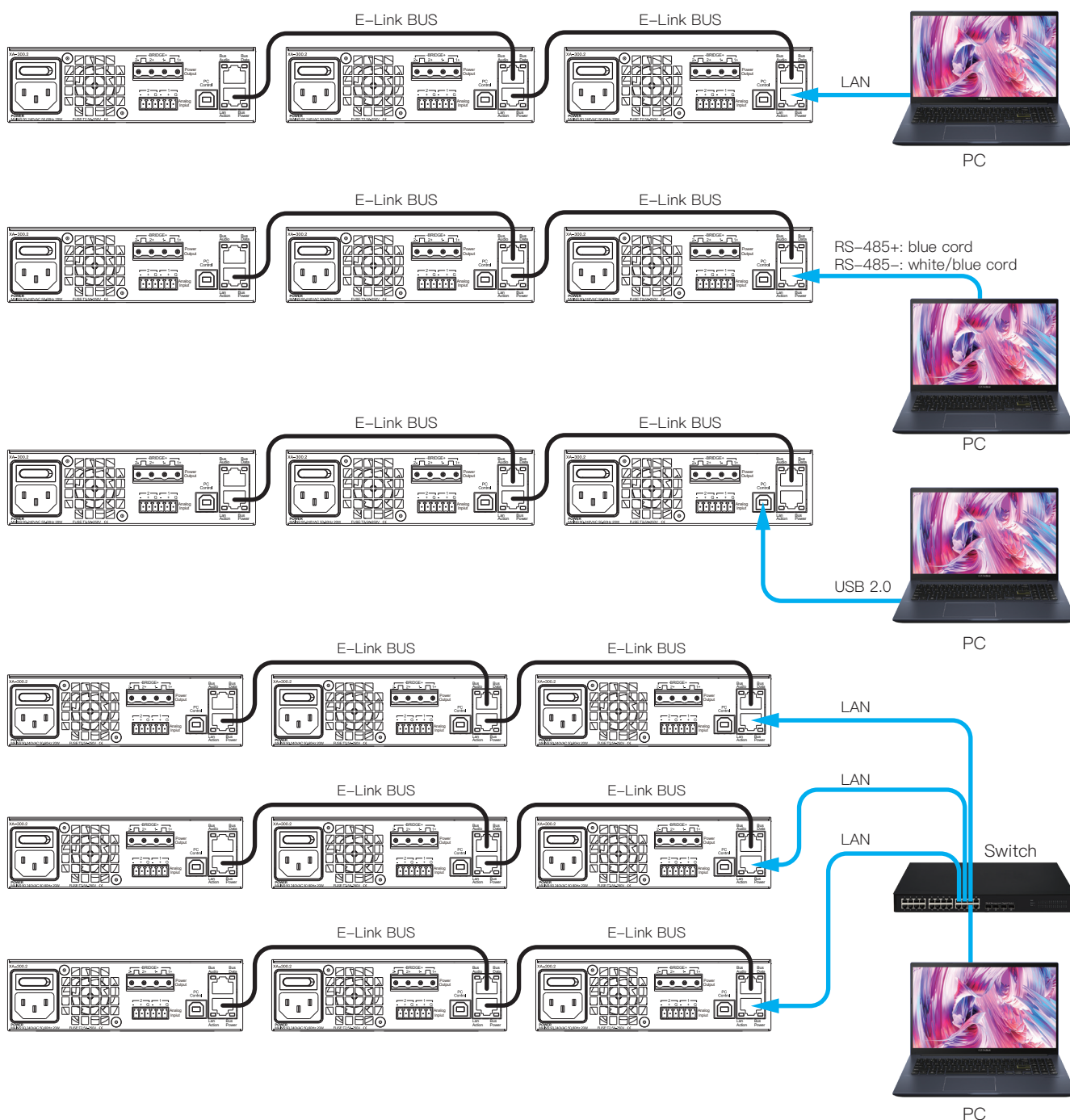

E–Link BUS

E–Link BUS

AES3 digital audio
Wiring
AES3 + : brown cord
AES3 − : brown/white cord
AES3 G : shield

When using digital audio signals, the E–Link bus supports cascaded transmission of digital audio signals.
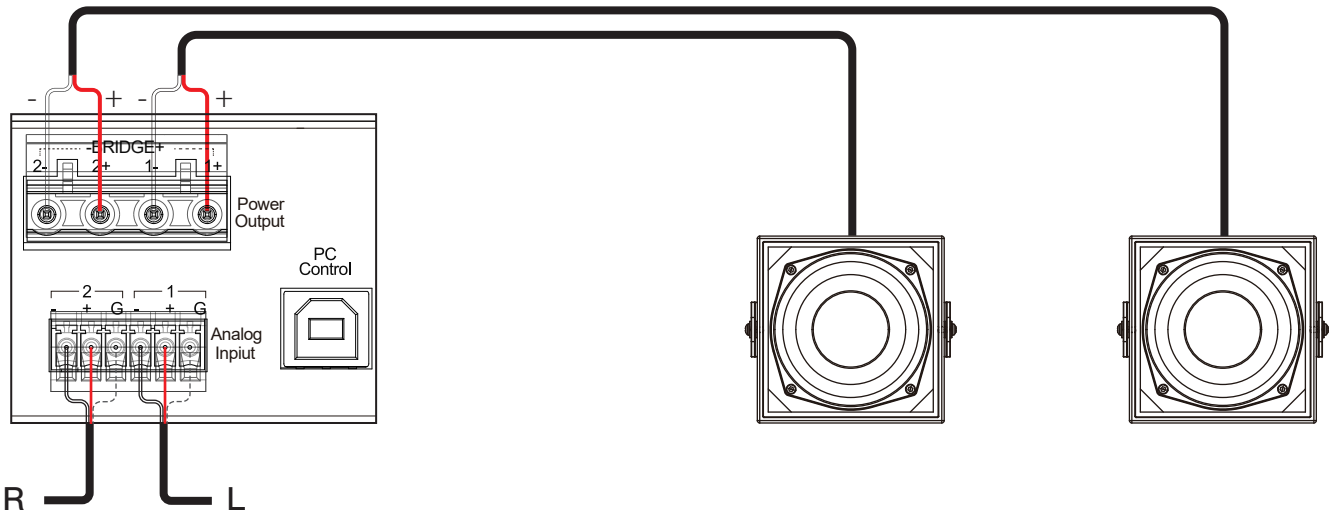
Online manage and control

Through the following connection methods, PC or control equipment can directly implement all functions such as control, modify parameters, read equipment information, etc. The network part follows the TCP/IP transmission protocol and wiring method.

E–Link BUS

E–Link BUS

LAN

PC

E–Link BUS

E–Link BUS

RS–485+: blue cord
RS–485−: white/blue cord

PC

E–Link BUS

E–Link BUS

USB 2.0

PC

E–Link BUS

E–Link BUS

LAN

E–Link BUS

E–Link BUS

LAN

E–Link BUS

E–Link BUS

LAN

Switch

PC

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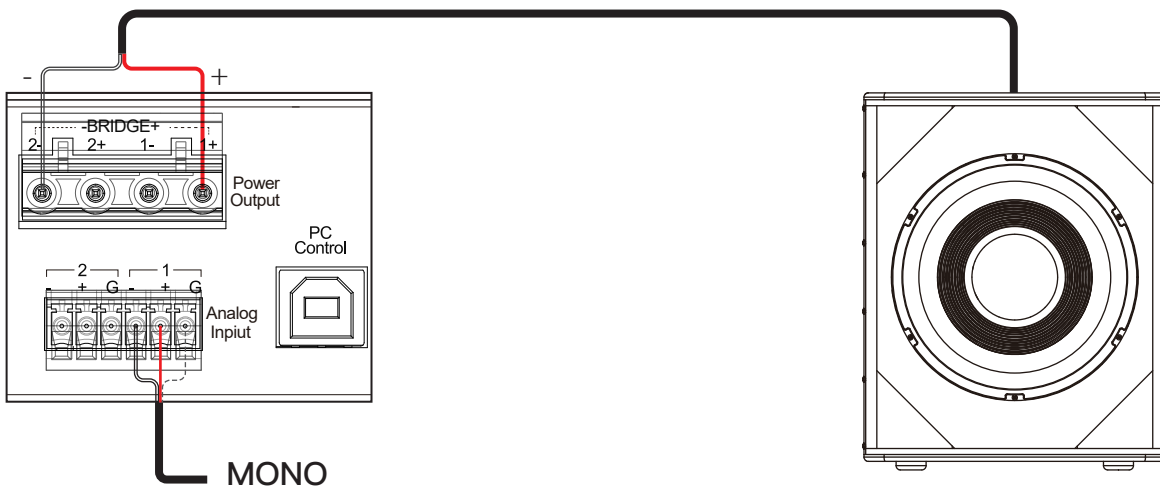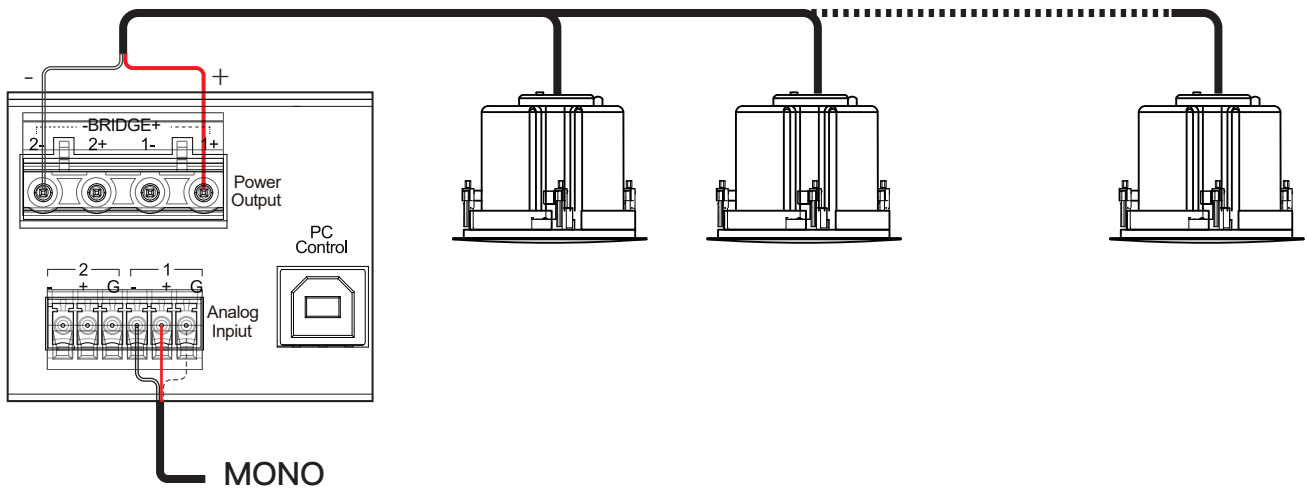## System wiring diagram

Stereo


Bridge

100V Constant voltage

Power on

After connecting the line and confirming that there is no signal input from the power amplifier, you can turn on the power at this time. After the power is turned on, the LCD screen and the LED status indicator light up. The LED indicators of the RJ45 on the back panel will be lit at the same time. Refer to the following table for the status of the indicators.

Item	Default	Mode	Color	State	Description
1	Status	Application	Green	Solid ON	Device ready
				Medium Blink	Device powering ON or OFF
				Fast Blink	Receiving commands or datas from PC or other controls
			Red	Medium Blink	Warning issues, eg.high temp/illegal Copy/–load mismatch
				Solid ON	Hardware fault,eg.Dsp fault/e2prom fault
		Bootloader	Green	Slow Blink	Device ready
				Fast Blink	Receiving commands or datas from PC or other controls
			Red	Solid ON	Hardware fault,eg.Dsp fault/e2prom fault
				Medium Blink	Warning issues, eg.high temp/illegal Copy/–load mismatch
2	Lcd Backlight	Any	White	Solid ON	Device ON
				Blink	Indicate device loaction when "Indicate" command received
3	Bus Audio(Rear)	Any	Orange	Solid ON	Cascading or source out digital audio on TX
4	Bus Audio(Rear)	Any	Green	ON or Fast Blink	Bus data activities present
5	Bus Audio(Rear)	Any	Orange	ON or Fast Blink	Lan linked or Lan activities present
6	Bus Audio(Rear)	Any	Green	ON	Isolated Bus power supply is on

Front panel setting
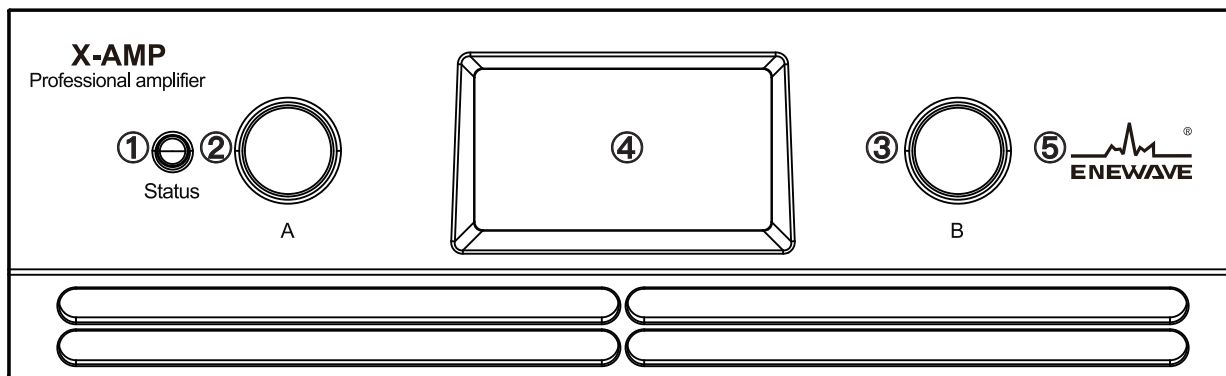
Front panel

① Multi—function Status light:
 Red and green two—color indicator lights, refer to the following table for various states
②、③ Multi—function control knobs and buttons:
    VOLUME
    MUTE
    SHOW PAGE TURN
    GO TO SETTING
④ LCD screen
⑤ Brand Logo

6. Front panel operation

XA—300.2 can control the power amplifier or adjust related data through the front panel operation, including volume, setting and other operations. The specific operation is completed by two data wheels + buttons (rotation and pressing). For the convenience of expression, we define data wheels A and B. , keys A, B.
After the startup is completed and the device is ready, the device is in normal use at this time, and the A and B data wheels can be used to control the device.
Volume control (Input Level): Rotate the A and B data wheels to control the input level (volume) of channel 1 and channel 2.
Mute control (Input Mute): Press and hold button A or B for about 2 seconds to mute channel 1 or channel 2, and long press again to cancel mute.
Display page turning: short press button A or B to turn pages up and down to view information.
Page lock: Short press buttons A and B at the same time to lock the display of the current page, and also disable controls such as volume and mute until the page lock is released. Short press buttons A and B at the same time again to unlock.
Enter the setting: Press and hold the A and B buttons at the same time for about 2 seconds to enter the setting page. At this time, the data wheel A is responsible for the directory or data frame switching, the data wheel B is responsible for the parameter adjustment, the button A is used as the exit key, and the button B is used for confirmation. key to use.
Click the A and B buttons to use as the display page—turning buttons of the LCD screen.
The display content is shown in the following table

State	Page	Display content
Display state	1	Name TAG: Address ID:XXX—XXXX Mailing address: Off line / On line Status of Ch1: Level, Power, Load Impedance, Voltage, Current Status of Ch1: Level, Power, Load Impedance, Voltage, Current
	2	Input signal details
	3	Input signal level information
	4	Communication port status
	5	Product information

After entering the setting state, the menu structure of the LCD display is shown in the following table,

Set up state	Resets	Defaults A		
		DeviceSetup		
		Seting		
		DSP		
		UserGroup		
		SpkrModel		
	Setup	Nework	TAG	XXX−XXX
			ID	
			IP Now	XX.XXX.XXX.XXX
			Static	XX.XXX.XXX.XXX
			Mode	Auto/Static
		Display	Idle Return	
			Light Time	
			Contrast	
			Reverse Display	
			Power Delay	
			Device Lock	
	Seting	Speaker Model	Default	Stereo
				Parallel
				Bridge
				100V
			X Series	X−Pad*1
				X−Pad*2
				X−Pad*3
				X−Pad*4
				X−Cube5
				X−Cube8
				X−Sub12
				X−Bass11
				X−Bass6
				X−Bass4
				X−Pad Mini
			CS Series	CS−4C
				CS−6C
				CS−8C
				CS−84S
			CLA Series	Lark−08*1
				Lark−08*2
				Lark−16*1
				Lark−16*2
				Shrike−08*1
				Shrike−08*2
				Shrike−16*1
				Shrike−16*2
			SW Sesies	SW−12
				SW−15

Users can perform in–depth settings and operations through PC software.
XA–300.2。

7. Install the EDMS software:

When you purchase the X–AMP machine, please apply for the EDMS client software from the dealer, and users can also download the latest version from the EDMS official website global.enewave.com. Please watch the relevant instructional video for how to use the software.

When you are installing the EDMS software, if the Microsoft NET Framework3.5 plug–in does not exist on the user's computer, the EDMS software cannot be used even after the installation is completed. So users need to use the Internet to download Microsoft NET Frame–work3.5 to the PC. Or contact ENEWAVE for technical support.

NOTE:

• Before installing a new version, uninstall the old version to prevent conflicts.
• When the software installation is in progress, select Allow EDMS to access the network through the firewall.
• Please make sure the software is the latest version to get more function extensions.
• After installation, please close the software once, and then open it again.

Specifications

Amplifier

- Rated power(RMS THD=1%,continue sine wave, 1KHz， typical)
  2x350W/8ohms;2x450W/4ohms (dual)
  1x900W/8ohms(bridge)
  1*900W/100V（constant voltage） • Voltage gain：27.8dB(8Ω,1kHz)
- THD+N：typical：0.001%(10%RMS output power,1kHz,8Ω)
- Frequency response：20Hz- 20kHz (tyipcal：±0.2dB(10%MS output power,8Ω)
- Input impedance：20kΩ(balance),10kΩ(unbalance)
- Signal to noise ratio：≥100dB(A weight,20Hz- 20kHz,8Ω)
- Damping factor：1000@100Hz

DSP

- DSP chip−set：ADI SHARC float point chip−set
- Sample rate：48kHz/24bit higher dynamic
- AD/DA dynamic: typical，114dB
- Protection：thermal limiter,overload,DC output
- Procession：gain,HPF,LPF,IIR parameter EQ,FIR filter,dynamic EQ,delay,output current limit for real−time feedback,voltage limiter,power limiter,temperature limiter,impedance abnormal protection,over load protection etc.
- Detective：Real−time detection of output voltage, current, load impedance, output power, operating temperature, etc.
- Remote control：LAN or RS−485
- Power supply：100~240VAC,50/60Hz
- 1U height, three modules can form a 19" standard rack−mounted 6−channel amplifier

Unit specifications

- Power supply：100~240VAC,50/60Hz
- 1U height, three modules can form a 19" standard rack−mounted 6−channel amplifier
- Dimension：145mm X mm X 44mm X 354mm(W X H X D)
- Packing dimension：305mm X 90mm X 470mm(W X H X D)
- Weight：1.95KG Nett, Shipping weight：3.15KG

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