

# EPA104/254

## User Manual



[www.audac.eu](http://www.audac.eu)

#### **ADDITIONAL INFORMATION**

This manual is put together with much care, and is as complete as could be on the publication date. However, updates on the specifications, functionality or software may have occurred since publication. To obtain the latest version of both manual and software, please visit the Audac website @ [www.audac.eu](http://www.audac.eu).

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# Introduction

## Quad channel Class–D amplifiers

The EPA series are energy efficient Class–D power amplifiers designed for a wide variation of applications, ranging from standard stereo configurations to multi–zone distributed speaker systems. They come available in various models with different output configuration and power ratings.

An outstanding sound quality is combined with other known advantages of Class–D amplifiers such as high energy efficiency. Automatic signal detection switches the amplifier to standby mode when no input signal is detected. This makes the amplifier comply to international energy and environmental requirement standards.

The compact size and lightweight design only requires a single 19" rackspace, while making them suitable for both fixed rack and mobile applications. The convection cooled construction requires only a minimum maintenance while guaranteeing high reliability.

The quad channel series of the EPA series are containing four individually controllable channels with the possibility for two by two bridging of the outputs, merging their power to a single load. An integrated active crossover network allows the possibility for applying high–pass and low–pass filters to the channels, creating a sub / top configuration for a stereo system with bass cabinet.

They are featuring advanced protection circuitry which protects against DC malfunctioning, short circuit, overheating and overload.

The signal input connections are implemented using balanced XLR connectors while the loudspeakers shall be connected to the terminal block output connections.

# Precautions

## READ FOLLOWING INSTRUCTIONS FOR YOUR OWN SAFETY

ALWAYS KEEP THESE INSTRUCTIONS. NEVER THROW THEM AWAY

ALWAYS HANDLE THIS UNIT WITH CARE

HEED ALL WARNINGS

FOLLOW ALL INSTRUCTIONS

NEVER EXPOSE THIS EQUIPMENT TO RAIN, MOISTURE, ANY DRIPPING OR SPLASHING LIQUID. AND NEVER PLACE AN OBJECT FILLED WITH LIQUID ON TOP OF THIS DEVICE.

DO NOT PLACE THIS UNIT IN AN ENCLOSED ENVIRONMENT SUCH AS A BOOKSHELF OR CLOSET. ENSURE THERE IS ADEQUATE VENTILATION TO COOL THE UNIT. DO NOT BLOCK THE VENTILATION OPENINGS.

DO NOT STICK ANY OBJECTS THROUGH THE VENTILATION OPENINGS.

DO NOT INSTALL THIS UNIT NEAR ANY HEAT SOURCES SUCH AS RADIATORS OR OTHER APPARATUS THAT PRODUCE HEAT

DO NOT PLACE THIS UNIT IN ENVIRONMENTS WHICH CONTAIN HIGH LEVELS OF DUST, HEAT, MOISTURE OR VIBRATION

THIS UNIT IS DEVELOPED FOR INDOOR USE ONLY. DO NOT USE IT OUTDOORS

PLACE THE UNIT ON A STABLE BASE OR MOUNT IT IN A STABLE RACK

ONLY USE ATTACHMENTS & ACCESSORIES SPECIFIED BY THE MANUFACTURER

UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME

ONLY CONNECT THIS UNIT TO A MAINS SOCKET OUTLET WITH PROTECTIVE EARTHING CONNECTION

THE MAINS PLUG OR APPLIANCE COUPLER IS USED AS THE DISCONNECT DEVICE, SO THE DISCONNECT DEVICE SHALL BE READILY OPERABLE

FOR BOTH DESKTOP AND RACK MOUNTABLE TYPES, THE AMPLIFIER SHALL BE POSITIONED HORIZONTALLY



## CAUTION – SERVICING

This product contains no user serviceable parts. Refer all servicing to qualified service personnel. Do not perform any servicing (unless you are qualified to)



#### WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

The WEEE marking indicates that this product should not be disposed with regular household waste at the end of its life cycle. This regulation is created to prevent any possible harm to the environment or human health.

This product is developed and manufactured with high quality materials and components which can be recycled and/or reused. Please dispose this product at your local collection point or recycling centre for electrical and electronic waste. This will make sure that it will be recycled on an environmentally friendly manner, and will help to protect the environment in which we all live.



#### EC DECLARATION OF CONFORMITY

This product conforms to all the essential requirements and further relevant specifications described in following directives: 2014/30/EU (EMC) and 2014/35/EU (LVD)

#### CAUTION

The symbols shown are internationally recognized symbols that warn about potential hazards of electrical products. The lightning flash with arrowpoint in an equilateral triangle means that the unit contains dangerous voltages. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the users manual.



These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.





# Chapter 1

## Pin connections and connectors

### CONNECTION STANDARDS

The in– and output connections for AUDAC audio equipment are performed corresponding to international wiring standards for professional audio equipment.

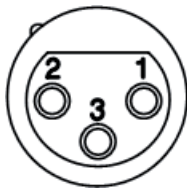
#### XLR:

For balanced signal input connections



**Pin 1:** Ground  
**Pin 2:** Signal +  
**Pin 3:** Signal –

For balanced signal link–through connections



**Pin 1:** Ground  
**Pin 2:** Signal +  
**Pin 3:** Signal –

## Wire up the system

The wiring of the system must be done according to the following rules, to guarantee a proper functioning of the system in all circumstances.

1. Speaker cable for amplified outputs:  
*Minimum 2 x 1.5 mm<sup>2</sup>*  
*If distance > 15m: 2 x 2.5 mm<sup>2</sup>*
2. Audio signal inputs inputs (& signal linkthrough outputs)  
*Must be connected with high–quality audio cable and high–quality connectors*

# Chapter 2

## Front & rear panel

### Front panel overview



### Front panel description

#### Volume control knobs:

These volume control knobs allow level adjustment for each individual channel.

#### Indicator LED's:

These LED's indicate the operation of the corresponding amplifier channel. A signal indicator, clip indicator and protect indicator are available for each channel.

The signal indicator illuminates in green colour when the signal level exceeds the  $-20$  dB level.

The clip indicator illuminates in yellow colour when the channel is working at maximum level. To ensure the best signal-to-noise ratio, illumination of this indicator should only occur at peak levels. When it illuminates frequently, the channel output will be overdriven and a distorted 'clipping' sound occurs on the output.

The protect indicator illuminates in red colour when any overload, thermal overheating or other fault is detected. It also illuminates for several seconds when powering on the amplifier and slowly fades out when switching off the amplifier. When the protect LED is illuminated, no signal will be available on the output.

#### Power switch with LED:

A power switch allows to turn the amplifier on and off. The indicator LED next to the power switch indicates the current status of the amplifier. When operational, it illuminates in blue colour. When switched to standby (energy-saving) mode, the power LED will illuminate in orange colour. The amplifier switches automatically to standby mode when no input signal is available for 30 minutes and instantly switches back to operation when any signal is detected.

# Rear panel overview



## Rear panel description

### AC Power inlet with fuse:

The mains power supply has to be applied to this AC power inlet. The connection is made by an IEC C14 power connector and is fitted with a fuse. When replacing the fuse, make sure that the value of the replacement fuse matches the value of the original fuse. (EPA104: T6.3AH/250V – EPA254: T10AH/250V)

### Loudspeaker connections:

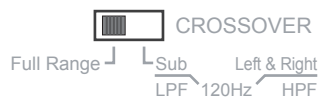
The loudspeaker output connections are implemented using terminal block connectors. A detailed description for connecting loudspeakers in the most appropriate way for each application can be found in the next chapter ‘Connecting the amplifier’.

### Input connections:

The signal input connections are implemented using balanced XLR connectors. Each channel is provided with an individual input connection whereto the signal coming from the audio source of pre–amplifier shall be fed.

### Crossover switch:

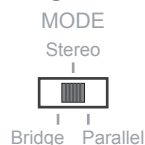
Using the crossover switch, the amplifier mode can be switched between ‘Full–range’ (left position) and ‘Two–way’ (right position) mode. In ‘Full–range’ mode, all four channels are driven with a full–range signal without any applied filtering.



In ‘Two–way’ mode, a high–pass filter is applied to channels 1 and 2, while a low–pass filter is applied to channel 3. The crossover frequency is 120 Hz. This mode allows the amplifier for being used in a two–way configuration, with stereo high frequency loudspeakers connected to channels 1 and 2 and a mono bass cabinet connected to channels 3 and 4 in bridge mode configuration.

### Operation mode switch:

An operation mode switch is available for every pair of input channel connections (channels 1+2 and channels 3+4), allowing switching between stereo, bridge and parallel mode.



It is default configured in stereo mode (center position) whereby each amplifier channel is fed with an individual input signal. In bridge mode (left position), the power of both channels is merged for delivering double power to a single load. In parallel mode (right position), the inputs for channels 1+2 and channels 3+4 are linked, feeding the identical signal to both channels.

# Chapter 3

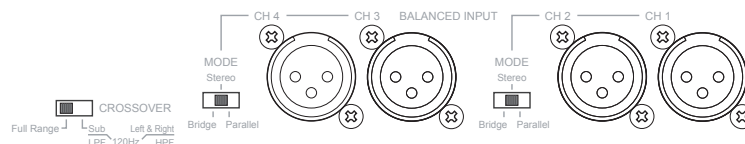
## Connecting the NOBA8A

### NOTE

Make sure the power is switched OFF when any change is made to the connections of the amplifier.

## Input connections

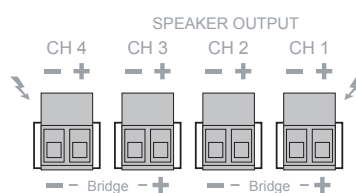
The signal input connections are implemented using balanced XLR connectors. Each channel is provided with an individual input connection whereto the signal coming from the audio source of pre-amplifier shall be fed.



Each pair of input channels contains an operation mode switch, allowing switching the corresponding channels between stereo, bridge and parallel mode.

## Output connections

The loudspeaker output connections are implemented using terminal block connectors. Depending of the operation mode of the amplifier, loudspeakers shall be connected to the appropriate connection terminals.



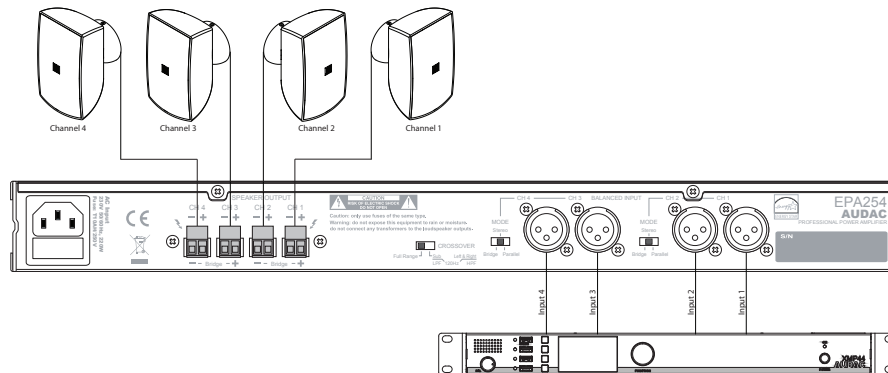
### ATTENTION

Do not make any direct connection with line transformers on the loudspeaker outputs of the amplifier. When using in combination with line transformers units, make sure the used transformers are designed for being used in combination with Class-D amplifiers (containing integrated decoupling network).

# Connection modes

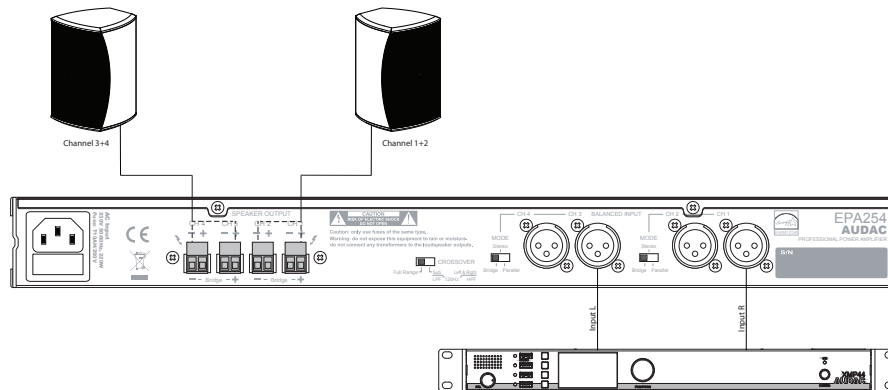
## 4-Channel mode:

In 4-Channel mode, each channel will be driven by a separate input signal with individual loudspeaker(s) connected to it. Both operation mode switches shall be in stereo mode (center position) and the crossover switch shall be in full-range mode (left position). If two subsequent channels (channel 1+2 and channel 3+4) shall be fed with identical signals, the parallel mode (right position of operation mode switch) can be used. Loudspeaker cabling shall be connected to the + and – terminals for each individual loudspeaker output connection.



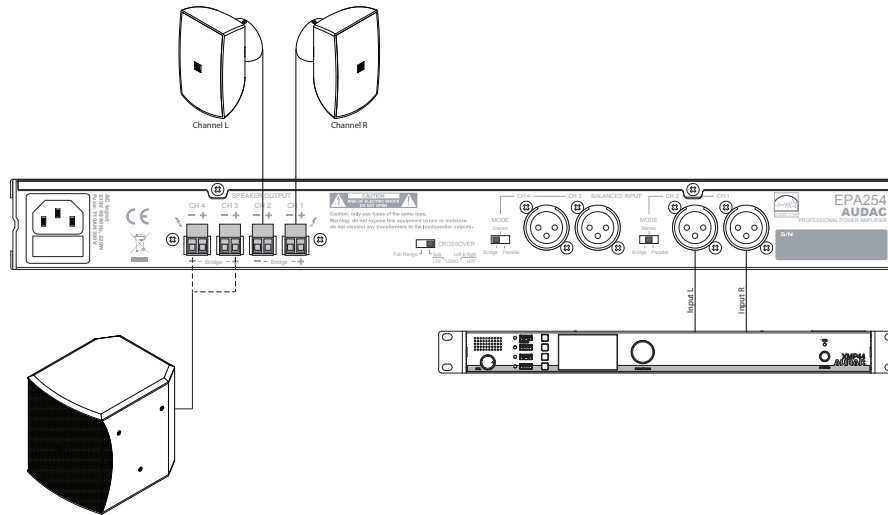
## 2-Channel (bridged) mode:

In 2-Channel (bridged) mode, two output channels will be merged for delivering double power to a single load. The bridged configuration can be individually enabled for each pair of two channels (channel 1+2 and/or channel 3+4) through placing the operation mode switches in bridge mode (left position). In bridged mode, channel 1 and channel 3 input connections shall be used while the loudspeakers shall be connected between + and – terminals of both separate channels.



### 3-Channel (2-Way sub/top) mode:

In 3-Channel (2-way sub/top) mode, the internal active crossover network of the amplifier applies a high-pass filter to channels 1 and 2 (left & right) and a low pass filter to the bridged channel 3+4 (subwoofer). This offers the possibility for creating a stereo system with mono bass cabinet. The stereo audio input must be fed to inputs 1 and 2 and the operation mode switch for these channels shall be placed in stereo (center position). The operation mode switch for channels 3 and 4 shall be placed in bridge mode (left position) and the internal crossover network must be enabled (crossover switch in right position).



# Chapter 4

## Additional information

### Technical specifications

Continuous power (AES)	EPA104	4 Ohm stereo	4 x 100 W
		8 Ohm stereo	4 x 50 W
		8 Ohm bridge	2 x 200 W
	EPA254	4 Ohm stereo	4 x 250 W
		8 Ohm stereo	4 x 130 W
		8 Ohm bridge	2 x 500 W
Frequency response			20 Hz – 20 kHz
Signal to Noise ratio			> 90 dB
Total Harmonic Distortion + Noise			< 0.1%
Crosstalk			> 70 dB
Inputs	Type		Balanced line
	Connectors		Female XLR
	Impedance		12 k $\Omega$
	Sensitivity		0 dB (1 V RMS)
Outputs	Type		Loudspeaker output
	Connectors		Speakon compatible
Controls			Front panel control
Indicators			Power (& standby)
			Protect
			Clip
			Signal
Cooling system			Convection cooled
Amplifier technology			Class–D
Power supply	Type		Switching mode
	Range	EPA104	100~240 V AC 50/60 Hz
		EPA254	230~240 V AC 50/60 Hz

#### NOTE

The power supply range for EPA254 is default configured for use on 230~240 V AC 50/60 Hz (EU) mains network. Internal modification allows this model being used on 110~120 V AC 50/60 Hz (US) mains network. Contact your local service center for more information.

Power consumption	Standby	EPA104	0.8 W
		EPA254	0.7 W
	Idle	EPA104	26.5 W
		EPA254	26 W
	1/8 Rated power	EPA104	86.4 W
		EPA254	186 W
	1/3 Rated power	EPA104	188 W
		EPA254	438 W
Dimensions (W x H x D)			482 x 44 x 330 mm
Unit height			1 HE
Weight		EPA104	4.5 Kg
		EPA254	4.7 Kg