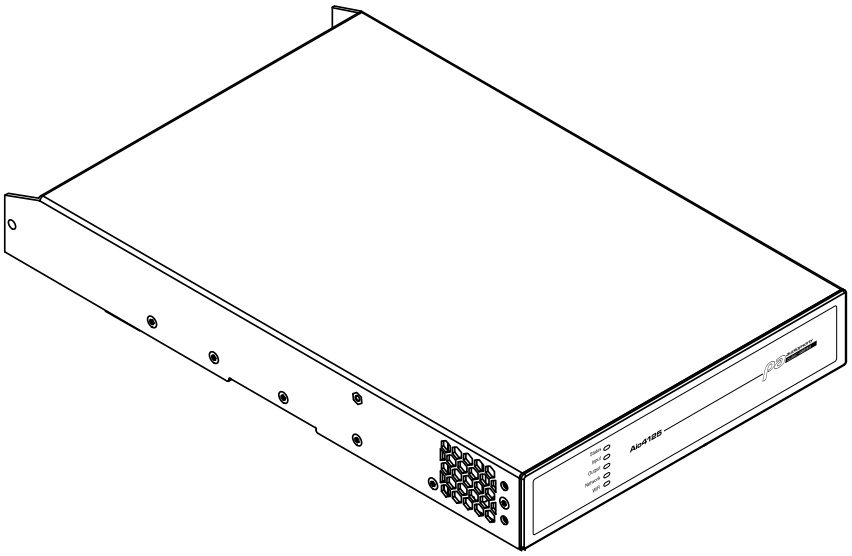
audiophony
public-address



Aio4125

4x4 digital powered amplifier - 4x125W - 2x250W - 100V and8Ω bridged - 1U half-rack

Aio8125

8x8 digital powered matrix - 8x125W - 4x250W - 100V and8Ω bridged - 1U

USER GUIDE

H11854 / H11855 - Version 1 / May 2026

Technical and safety advice

Please read the following technical, safety and environmental instructions carefully before installing and using your amplifier.

Technical notes

Every reasonable measure has been taken in terms of design and engineering to ensure that these amplifiers always operate satisfactorily within their intended application and environment, and that they provide an adequate level of support to meet all reasonable customer needs and expectations. This support is, however, subject to the following conditions.

- These amplifiers are Class I devices and must be installed using a power cable with the required earth connection in order to comply with Class I safety standards.
- These amplifiers must always be installed by competent and qualified personnel. Any damage to or malfunction of the amplifier resulting from installation or operating errors may invalidate the support, warranty or performance guarantees.
- These amplifiers must not be used in places where minors might have access to them.
- These amplifiers are specifically designed for amplifying audio signals and for connection to moving-coil loudspeakers. Using these amplifiers to amplify signals outside the audio band (20 Hz to 20 kHz) or to power transducers other than moving-coil speakers may result in the cancellation of support, warranty or performance guarantees.
- These amplifiers must only be used in audio systems installed and configured by professionals, comprising auxiliary input and output equipment of recognised performance standards and in good working order. Any damage to these amplifiers or any unsatisfactory performance on their part resulting from unsuitable or faulty auxiliary input or output equipment may invalidate the support, warranty or performance guarantees.
- These amplifiers are intended for indoor installation and use in a controlled environment (pollution degree PD2), at an ambient temperature between 0 °C and 40 °C. They are not designed for use at altitudes exceeding 2,000 metres. Installing or using these amplifiers in environments that do not comply with these limits may result in the cancellation of support, warranty or performance guarantees.
- Specific warranty terms and conditions are the responsibility of the amplifier retailer.

Safety and environmental notices

Note: The symbol depicting a lightning bolt with an arrow inside a triangle is intended to alert the user to the presence of 'dangerous' uninsulated voltage inside the product's housing, the intensity of which may be sufficient to pose a risk of electric shock to people.

Note: The exclamation mark inside an equilateral triangle is intended to draw the user's attention to the presence in this manual of important instructions relating to safety, operation and maintenance.

WARNING! TO AVOID THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

Note regarding ambient temperature: if this equipment is used in a confined space or within a multi-rack installation, the internal ambient temperature may exceed the external ambient temperature. In such circumstances, it is important to ensure that the maximum operating temperature specified for the equipment is not exceeded.

Reduced airflow: ensure that the rack or any other enclosed structure does not obstruct the flow of cooling air required for the safe and reliable operation of the equipment.
Leave a space of one unit between each amplifier.

Technical and safety advice

Important safety instructions

- Please read these instructions.
- Please keep these instructions.
- Please observe all safety warnings.
- Follow all the instructions.
- Do not use this appliance near a source of water.
- Do not immerse the device in water or other liquids.
- Do not use any aerosols, cleaning products, disinfectants or fumigants on, near or inside the equipment.
- Clean with a dry cloth only.
- Do not block any ventilation openings. Install the appliance in accordance with the manufacturer's instructions.
- Do not install it near heat sources such as radiators, air vents, stoves or any other equipment (including amplifiers) that generates heat.
- To reduce the risk of electric shock, the power cord must be plugged into a socket with a safety earth connection.
- Do not compromise the safety function of the earthed plug. An earthed plug has two pins and a third earth pin. The third pin is provided for your safety. If the plug supplied does not fit your socket, consult an electrician to have the obsolete socket replaced.
- Make sure the power cord is not stepped on or pinched, particularly around the plugs, sockets and where it exits the appliance.
- Do not unplug the appliance by pulling on the cord; instead, use the plug.
- Only use accessories recommended by the manufacturer.
- Unplug this appliance during a thunderstorm or if it is not going to be used for a long period of time.
- Always have maintenance work carried out by a qualified technician. Service is required if the appliance has suffered any damage, for example if the power cord or plug is damaged, if liquid has been spilled or objects have fallen inside the appliance, if the appliance has been exposed to rain or moisture, if it is not operating normally, or if it has been dropped.
- The appliance's plug must be used to disconnect it from the mains supply and must remain easily accessible after installation.
- Please comply with all applicable local regulations.
- If you have any doubts or questions regarding the physical installation of equipment, consult a qualified engineer.

Environmental Statement

This product complies with international directives, including the Restriction of Hazardous Substances (RoHS) Directive for electrical and electronic equipment, the REACH Regulation (Registration, Evaluation, Authorisation and Restriction of Chemicals) and the Waste Electrical and Electronic Equipment (WEEE) Directive. Please consult your local waste management authorities for information on how to recycle or dispose of this product correctly.

EC Declaration of Conformity

This product complies with all the essential requirements and other specifications set out in the Directive
- 2014/53/EU (RED)
- 2014/35/EU (LVD)
- 2014/30/EU (EMC)
- 2011/65/EU (RoHS)

The full EU declaration is available at audiophony-pa.com.

Introduction and overview

1. Introduction

The Aio4125 and Aio8125 power amplifiers have been designed to provide high-performance, configurable, consistent and reliable audio amplification for residential, commercial and entertainment applications. Please read this manual carefully before installing and using an amplifier. If you have any questions regarding the configuration, installation or operation of the amplifier, please contact the relevant customer support service.

Following this introduction, the handbook is divided into sections covering the following topics:

- 2. Overview
- 3. Contents of the box
- 4–5. Installation
- 6. Configuration
- 7. Connections
- 8. Using the device
- 9. Technical specifications

2. Introduction to the amplifier

The **Aio4125 and Aio8125**amplifiers are 1U power amplifiers , available in **half-rack** and **full-rack** versions, capable of driving both conventional low-impedance speakers (Lo-Z, 4 Ω to 16 Ω) and high-impedance speakers (Hi-Z, 70 V/100 V) via a transformer.

The amplifiers offer four or eight analogue inputs depending on the model, a stereo S/PDIF digital input on certain models, as well as four or eight outputs (Lo-Z mode) or one, two or four outputs (Hi-Z mode).

The **Aio4125 and Aio8125**amplifiers also feature automatic power distribution technology, which distributes power proportionally between the output pairs in Lo-Z mode, as required.

Aio4125 and Aio8125 The rack widths, number of output channels and output power ratings of the amplifier models are as follows:

Aio4125 four-output amplifier **(half-rack)**

Mode	**Channels**	**Maximum rated power per channel**
Lo-Z	Four	, 125 watts
Hi-Z	Two	, 250 watts
Lo-Z (BTL)	Two 250-watt	

Aio8125 amplifier with eight outputs **(full-rack width)**

Mode	**Channels**	**Maximum rated power per channel**
Lo-Z	Eight	125 watts
Hi-Z	Four	250 watts
Lo-Z (BTL)	Four 250-watt	

When using the 70V Hi-Z mode, the line impedance must not be less than 20 ohms. When using the 100V Hi-Z setting, the line impedance must not be less than 40 ohms

Please note: The total power rating of all connected speakers must not exceed the amplifier's maximum power rating.

Introduction and overview

2.1 Connections

The **Aio4125 and Aio8125** models feature RCA and Euroblock connectors for signal input and output. A GPIO (General Purpose In/Out) Euroblock connector allows certain amplifier functions to be controlled; wireless network connectivity or connection via an RJ45 Ethernet socket is also available.

The **Aio4125 and Aio8125** amplifiers do not have a power switch and are operational as soon as they are connected to the mains via the IEC 60320 socket.

2.2 Network features

The **Aio4125 and Aio8125** amplifiers are devices connected to a TCP/IP network that require a wired or wireless network connection to access their configuration menus. These menus are accessed via the web interface of the **Aio4125 and Aio8125** control application and cover functions relating to inputs, zones, outputs and general settings. The configuration menus are described in detail in **section 6** of this manual.

2.3 Dimensions

The dimensions and specifications of the **Aio4125 and Aio8125** amplifiers are shown in Figures**2A and 2B**. These amplifiers are primarily intended for installation in an equipment rack, but may also, in some cases, be mounted under a desk or on a wall, or used as stand-alone units. They are fan-cooled and must be installed in such a way that the ventilation openings are not obstructed.

2.4 Firmware

This manual describes the features, functions and user interface of the **Aio4125 and Aio8125** amplifiers running **firmware version 2026.9.1.**

We strongly recommend that you check the firmware version installed on your amplifier right from the start, and then at regular intervals. If a firmware update is available, you should install it as a matter of priority.

The firmware installed on the amplifier can be identified and updated by selecting the **'Device'** option in **the 'Settings' menu** of the Web Control application. You can check the firmware versions and download the firmware from the website dedicated to the **Aio4125 and Aio8125** models: https://audiophony-pa.com

3. Contents of the box

The **Aio4125 and Aio8125** amplifiers are supplied in a box containing the amplifier, a power cable suitable for the relevant market, a pack of accessories and a documentation pack. The full contents are listed below.

- Amplifier board
- Mains power cable
- Input connector x 2 or 4
- GPIO connector x 1
- Output connector x 2 or 4
- Adhesive rubber feet x 4
- Documentation folder

Overview

Figure 2A

Dimensions of the**Aio4125 four-channel** amplifier.
(The shaded area indicates the ventilation space.)

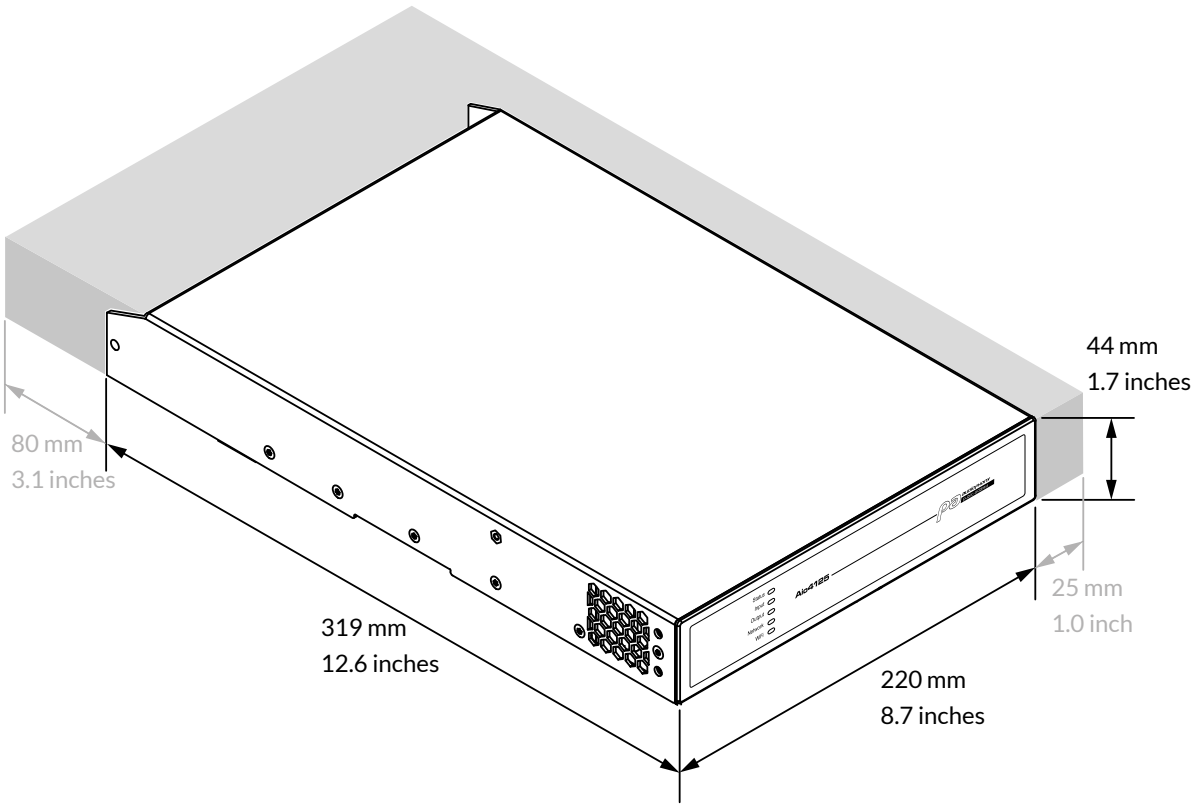
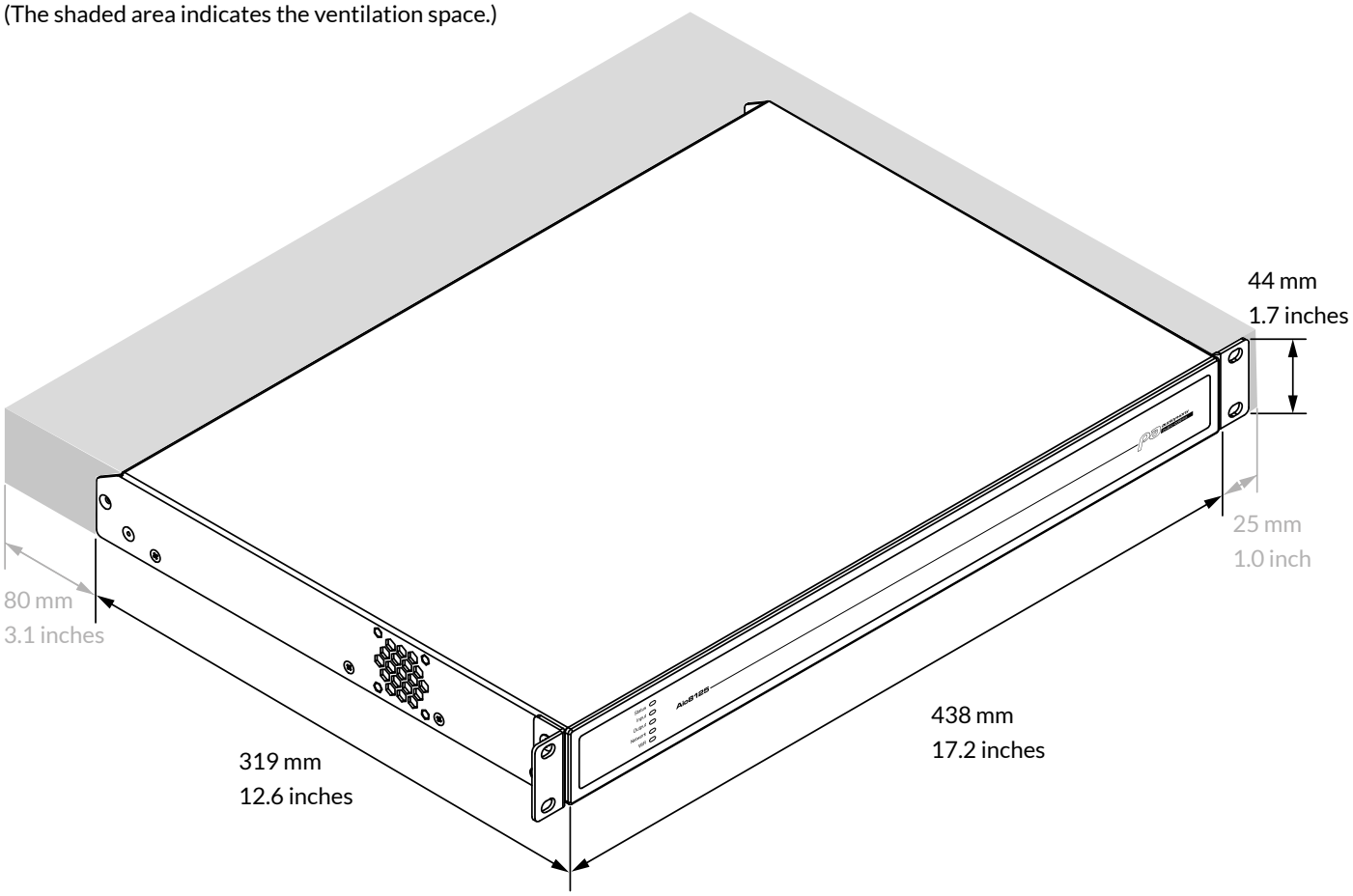


Figure 2B

Dimensions of the **Aio8125**eight-channel amplifier .
(The shaded area indicates the ventilation space.)



Installation

4. Installation of a half-rack amplifier

Model Aio4125

Note: The rack-mounting and desktop/wall-mounting brackets described and illustrated in sections 4.1 to 4.2 are not supplied with **the Aio4125 amplifier** *, but are available for purchase as accessories. H11859 - AioR1, H11860 - AioR2 and H1161 - AioR3.*

4.1 Installing the Aio4125

The Aio4125 half-width rack**amplifier** is supplied without rack-mounting hardware, but can be configured for rack installation using a standard rack bracket and a half-rack extension, as shown in **Figure 4A**. The installation and equipment rack must be configured to ensure sufficient airflow space at the sides, and a gap of 10 mm (1 inch) must be maintained at all times along at least one side of the amplifier. Ventilation openings are also located on the rear panel of the amplifier and must not be obstructed. It is important to maintain a clearance of at least 80 mm (3.1 inches) for air circulation behind the rear panel of the amplifier.

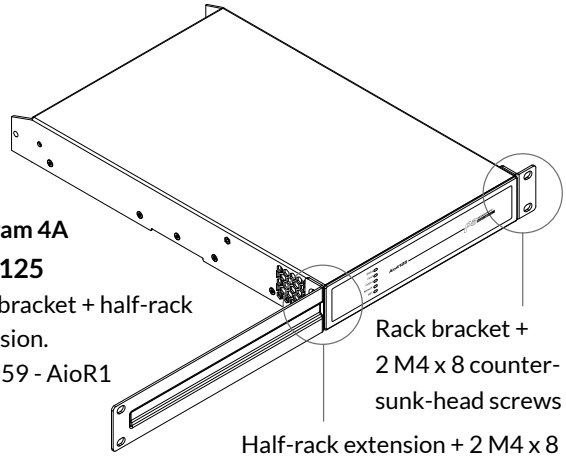
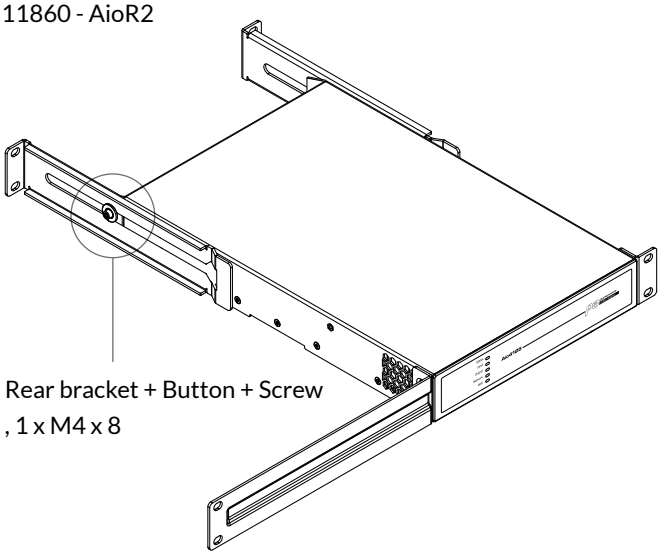


Diagram 4A
Aio4125
Rack bracket + half-rack extension.
H11859 - AioR1

Rack bracket + 2 M4 x 8 countersunk-head screws

Half-rack extension + 2 M4 x 8 countersunk-head screws

Diagram 4B
Aio4125
Mounting hardware for rack. 2 positions.
H11860 - AioR2



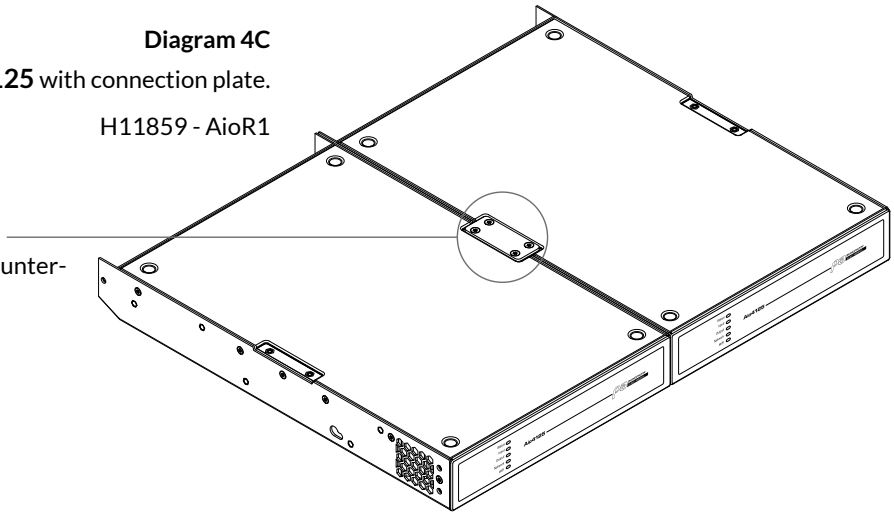
Rear bracket + Button + Screw , 1 x M4 x 8

In addition to the rack-mounting brackets, a rear mounting kit for rack installation is available as an option and can be fitted to the amplifier. This rear mounting kit may be useful if the amplifier is to be used in a mobile rack or if it is likely to be subjected to significant movement.

Figure 4B illustrates how to use the rear mounting kit for rack mounting.

It is also possible to mechanically connect several half-rack-width **Aio4125** amplifiers using a connection plate available as an accessory. **Figure 4C** illustrates the use of a connection plate. A connection plate is included in the kit shown in Figure 4A. When used with two rack brackets, this plate allows two amplifiers to be connected together and installed in a full-width rack space.

Diagram 4C
: 2 x **Aio4125** with connection plate.
H11859 - AioR1



Connection plate + 4 countersunk screws M3 x 6

Installation

4.2 Self-supporting

If not installed in a rack, the **Aio4125** amplifier, which is half a rack wide, can be placed on any flat surface. Adhesive rubber feet are provided for this purpose.

The Aio4125 amplifier, which is half a rack wide, can also be mounted under a desk or on a wall using a mounting plate. In such cases, it is recommended that you use the adhesive rubber feet to minimise vibrations between the amplifier and the mounting surface. Figures **4D and 4E** illustrate the wall-mounted and desktop setups.

In any standalone installation, it is important to ensure that the flow of air through the fans located on the amplifier's side panels and the ventilation openings on the rear panel is not obstructed by objects placed nearby. You should always leave a clearance of at least 80 mm behind the amplifier and 25 mm on at least one side.

4D diagram
Aio4125 with desk/wall mounting plate and adhesive feet.
2- and 4-position models.
H11860 - AioR3

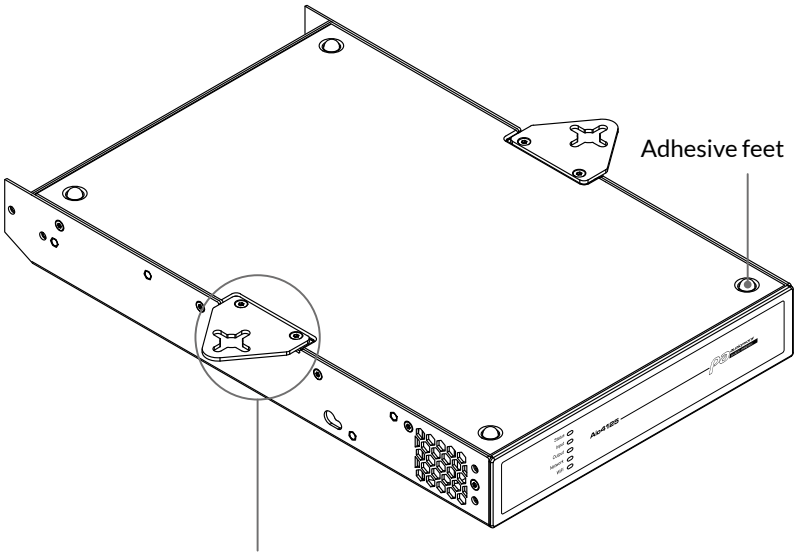
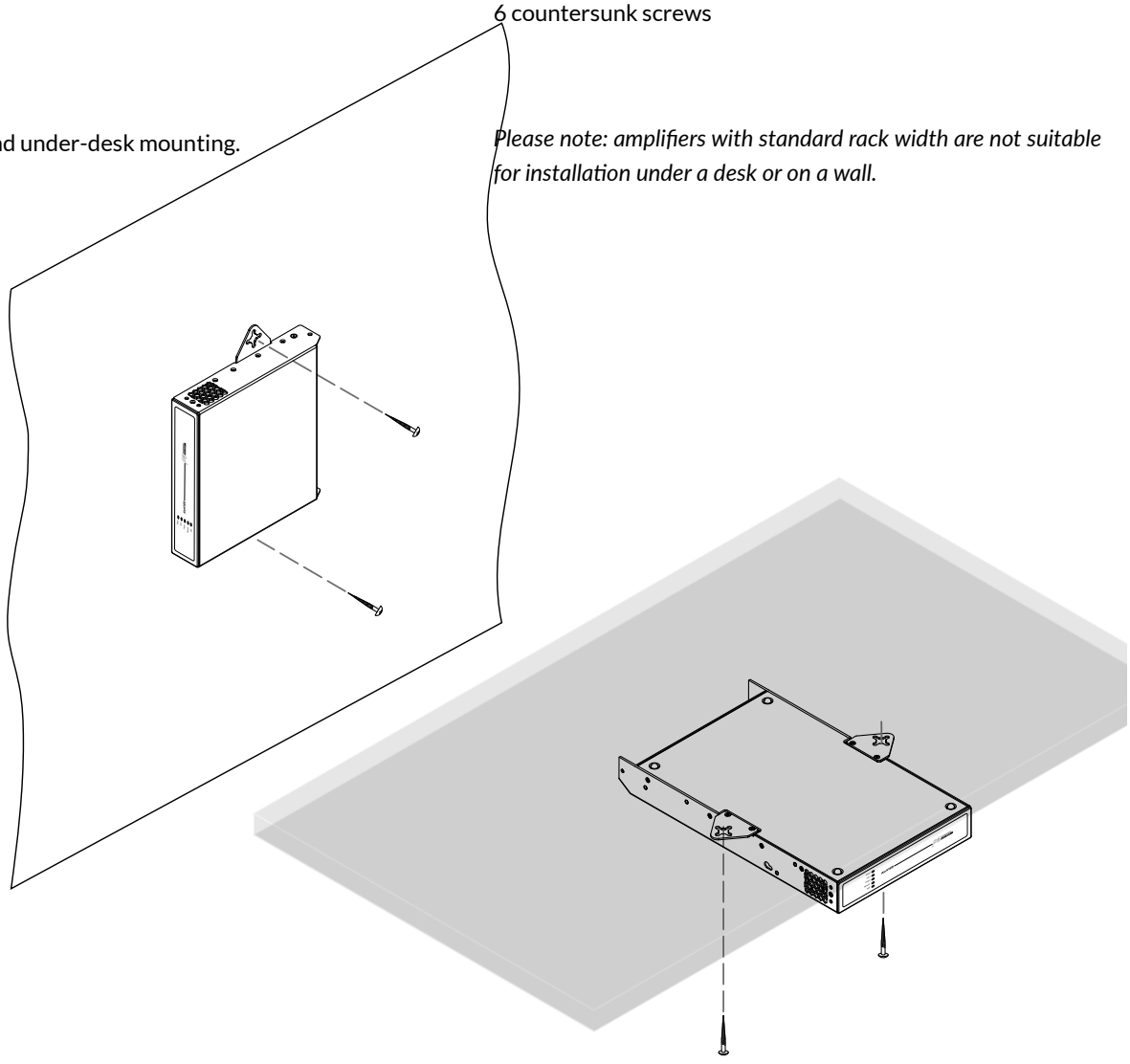


Diagram 4E
Aio4125
: wall-mounted and under-desk mounting.
H11860 - AioR3

Please note: amplifiers with standard rack width are not suitable for installation under a desk or on a wall.



Installation

5. Installing an amplifier across the full width of the rack

Model Aio8125

Note: the amplifier model **Aio8125** *amplifier model is intended exclusively for rack mounting or floor installation.*

5.1 Rack mounting

The Aio8125 amplifier, which spans the full width of a rack, comes with mounting brackets already fitted. The installation rack and equipment must be configured to ensure sufficient airflow around the sides and rear of the amplifier. An airflow clearance of at least 25 mm (1 inch) must be maintained at all times along at least one side of the amplifier. Ventilation openings are also located on the rear panel of the amplifier and must not be obstructed. It is important to maintain a clearance of at least 80 mm (3.1 inches) for air circulation behind the rear panel of the amplifier.

In addition to the rack-mounting brackets, a rear rack-mounting kit is available as an option and can be fitted to the amplifier. This rear rack-mounting kit may be useful if the amplifier is to be used in a mobile rack or if it is likely to be subjected to significant movement. **Figure 5B illustrates how to use** the rear rack-mounting kit.

5.2 Standalone

If they are not installed in an equipment rack, the **Aio8125** amplifiers can be placed directly on the floor on a flat surface. Adhesive rubber pads are supplied for this purpose. **Figure 5A** shows the position of the adhesive pads.

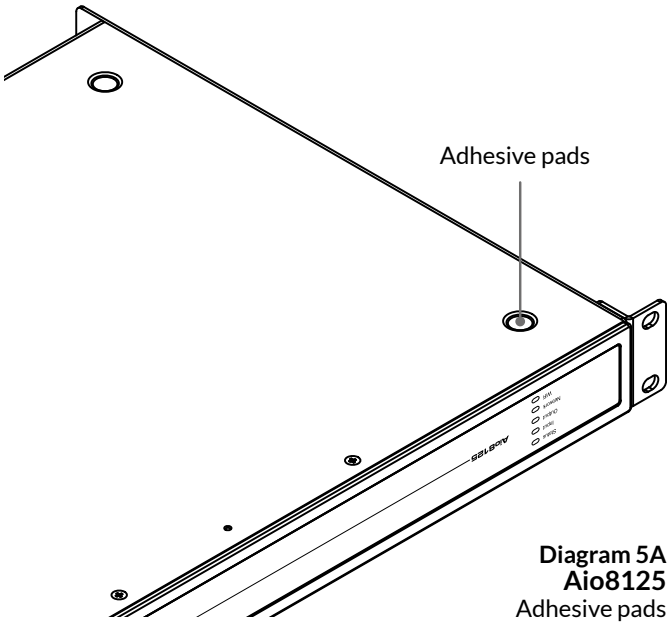


Diagram 5A
Aio8125
Adhesive pads

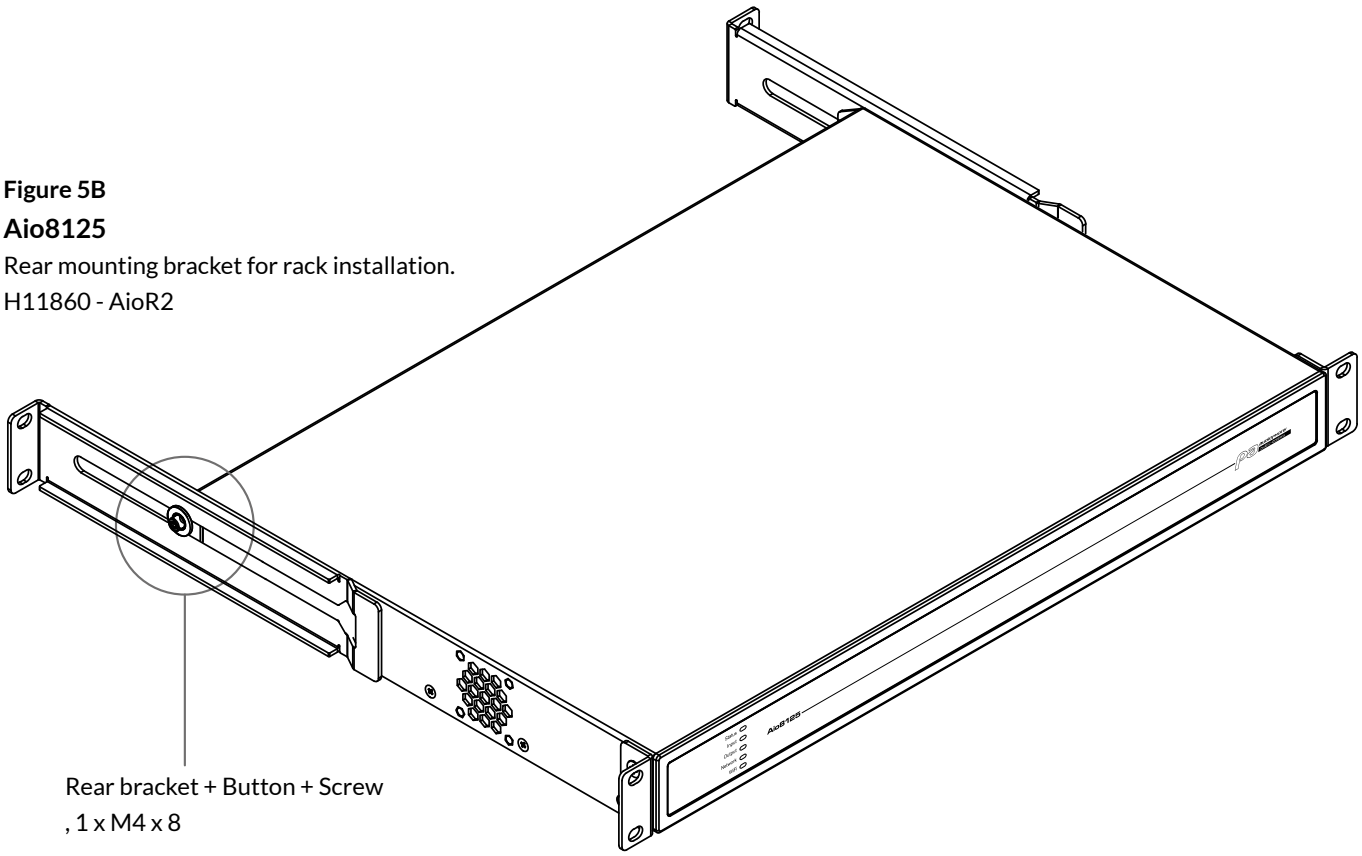


Figure 5B
Aio8125
Rear mounting bracket for rack installation.
H11860 - AioR2

Configuration

6. Configuration

Before connecting the input, output and GPIO pins, you should carry out an initial setup of the Aio4125 or Aio8125 amplifier. It is particularly important that the amplifier's output format is correctly configured for the speakers that will be connected.

The setup requires that the Aio4125 and Aio8125 amplifiers be connected to the mains and the network. These connections are described in the following two sections.

6.1 Mains connection

The**Aio4125 and Aio8125amplifiers** are fitted with a power factor correction power supply and can operate with a mains input voltage of between 100 V AC and 240 V AC at 50/60 Hz. Use the power cable supplied with the amplifier and plug it into a mains socket fitted with a switch.

The**Aio4125 and Aio8125** amplifiers do not have a power switch and are operational as soon as they are plugged in.

6.2 Network services

The Aio4125 and Aio8125 amplifiers are configured via a web interface called 'AioControl '. Before you can access the configuration menus, the Aio4125 and Aio8125 amplifiers must be connected to the same TCP/IP network as the computer or mobile device that will be used to access the configuration.

6.2.1 Wired network connection (Ethernet)

To connect an **Aio4125 or Aio8125** amplifier to a TCP/IP network via a wired (Ethernet) connection, follow the steps below.

1. Use an Ethernet cable to connect the 'Network Control' socket on the rear panel of the **Aio4125 or Aio8125** amplifier to an available port on a router or network switch, or directly to a laptop or desktop computer equipped with an Ethernet port.

2. Connect the **Aio4125 or Aio8125** amplifier to the mains using the power cable supplied. Wait until the 'Network' indicator on the front panel lights up green to show that the amplifier is connected to the network.

3. The network settings for the **Aio4125 or Aio8125** amplifier will be configured with a static LAN IP address of 192.168.64.100.

Using the DHCP protocol, the router will automatically assign a network address to the **Aio4125 or Aio8125** amplifier, enabling it to connect to the network automatically. If necessary, you can use a network analysis tool to identify the amplifier's IP address.

If you are using an **Aio4125 or Aio8125** amplifier with a static IP address, configure your laptop or desktop computer to use a static IP address within the same IP address range; for example 192.168.64.10, with a subnet mask of 255.255.255.0 (or prefix 24) and set the gateway to 192.168.64.1.

4. Open a web browser on your laptop or desktop computer, then enter the network address http://192.168.64.100. The AioControl app interface will open, allowing you to configure the amplifier to suit your needs.

Note: The **Aio4125 and Aio8125** *amplifiers can be configured to use the DHCP protocol for network connection if required. However, if an* **Aio4125 or Aio8125** *amplifier using DHCP is restarted, the TCP/IP network router may assign it a different IP address, making its configuration page inaccessible via the previous address. If this happens, a network scan application can be used to identify the new IP address. The settings for the DHCP and Fixed IP Address options are located in the Settings tab menu described in section 6.3.*

6.2.2 Connecting to a wireless network (Wi-Fi)

To connect an **Aio4125 or Aio8125** amplifier to a TCP/IP network via a wireless connection (Wi-Fi), follow the steps below.

1. Once the **Aio4125 or Aio8125** amplifier has been plugged in, wait until the Wi-Fi indicator on the front panel lights up green.

2. Use a mobile phone, laptop or desktop computer to search for available Wi-Fi networks. Connect to **'Aio4125' or 'Aio8125** (product serial number) **'** using the password **'password'.** The amplifier's serial number can be found on its rear panel.

3. Open the web browser on your computer or mobile device, then enter the IP address: 192.168.4.1. The AioControl web configuration interface will open, allowing you to configure the amplifier to suit your needs.

4. In the Aio's web configuration interface, select the 'Settings' tab, then 'Wi-Fi' > 'Wi-Fi Mode' > 'Client' to configure the extender to connect to the desired Wi-Fi network. You will be asked to enter the Wi-Fi network name and password.

We strongly recommend that you change the password for the Aio4125 or Aio8125 Wi-Fi access point amplifier after connecting to it for the first time.

6.3 Configuration menus

When you open a web browser connected to the network of an **Aio4125 or Aio8125** amplifier, the AioControl web configuration interface initially appears as the dashboard shown in **Figure 6A**. The dashboard is the home page from which all other configuration options can be accessed.

The dashboard displays the amplifier status, output zones and configuration menu tabs. It also provides immediate access to zone volume controls. The functions available under each tab in the configuration menu are described in the following sections.

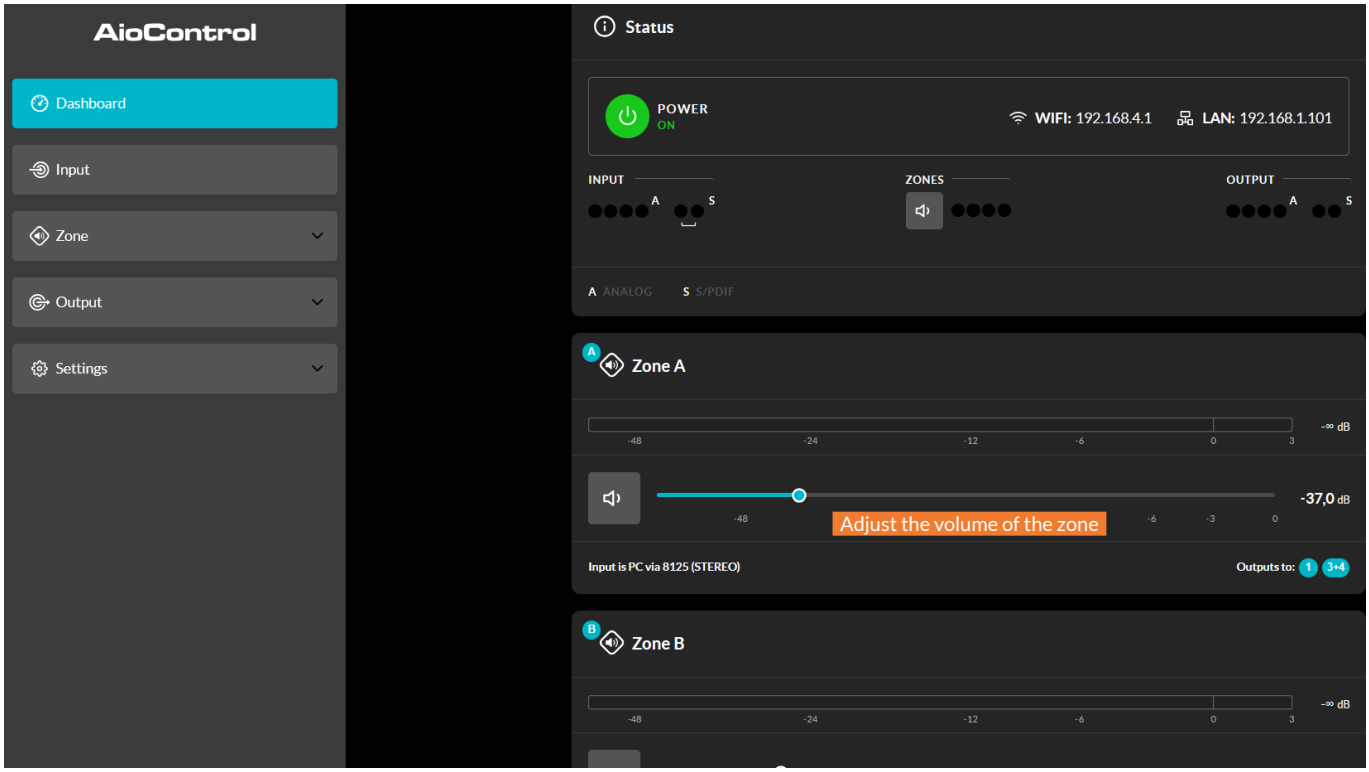


Figure 6A: Configuration dashboard display

6.3.1 'Input' tab

The 'Input' tab offers the following configuration settings for each of the amplifier's input channels:

- **Input name**
- **Mono/stereo selection**
- **Input sensitivity**
- **High-pass filter**
- **Gain control**
- **Five-band equalisation**

The ' **Input**' tab also allows you to mix input signals and route them to specific amplifier zones. The mixing function enables you to combine any amplifier input—including separate stereo or mono S/PDIF inputs—with one or more other inputs to create multiple preset mixes.

Note: The number of possible individual mixes corresponds to the number of analogue outputs on the amplifier (four outputs allow for four mixes; eight outputs allow for eight mixes).

Note: The mix inputs are disabled by default and their level controls are set to zero.

Mixing takes place after the high-pass filter, input equalisation and mono/stereo selection.

An audio signalgenerator producing pink noise or a sine wave, suitable for testing and configuring audio systems, can also be enabled, disabled and adjusted for gain and frequency via the **'Input'** tab . Figures **6B, 6C, 6D and 6E** illustrate the displays of the **'Input'** tab **,** the input equaliser and the input mix, respectively .

Configuration

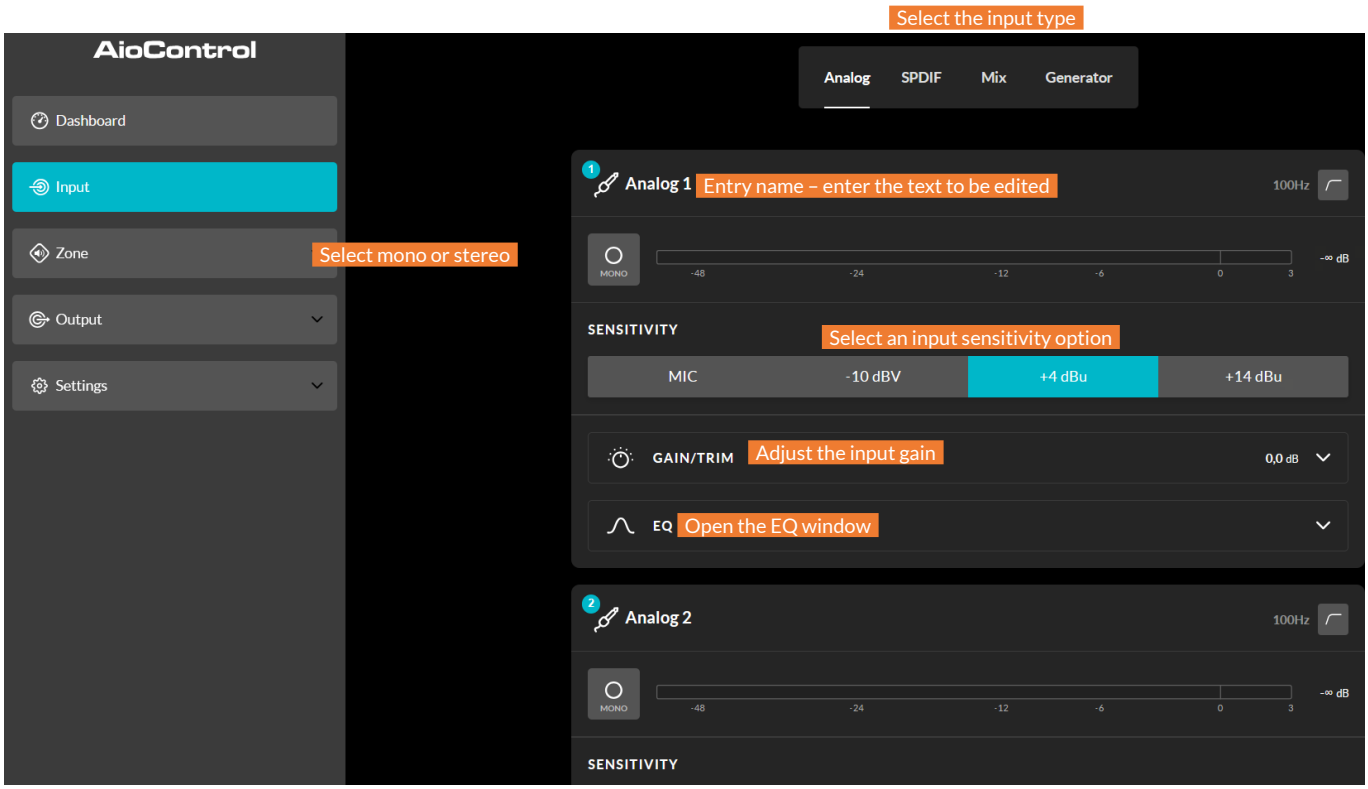


Figure 6B: The 'Input' tab (only two inputs are shown)

Note: When adjusting the input gain, the input level indicator should remain green. If it turns red, reduce the input gain.

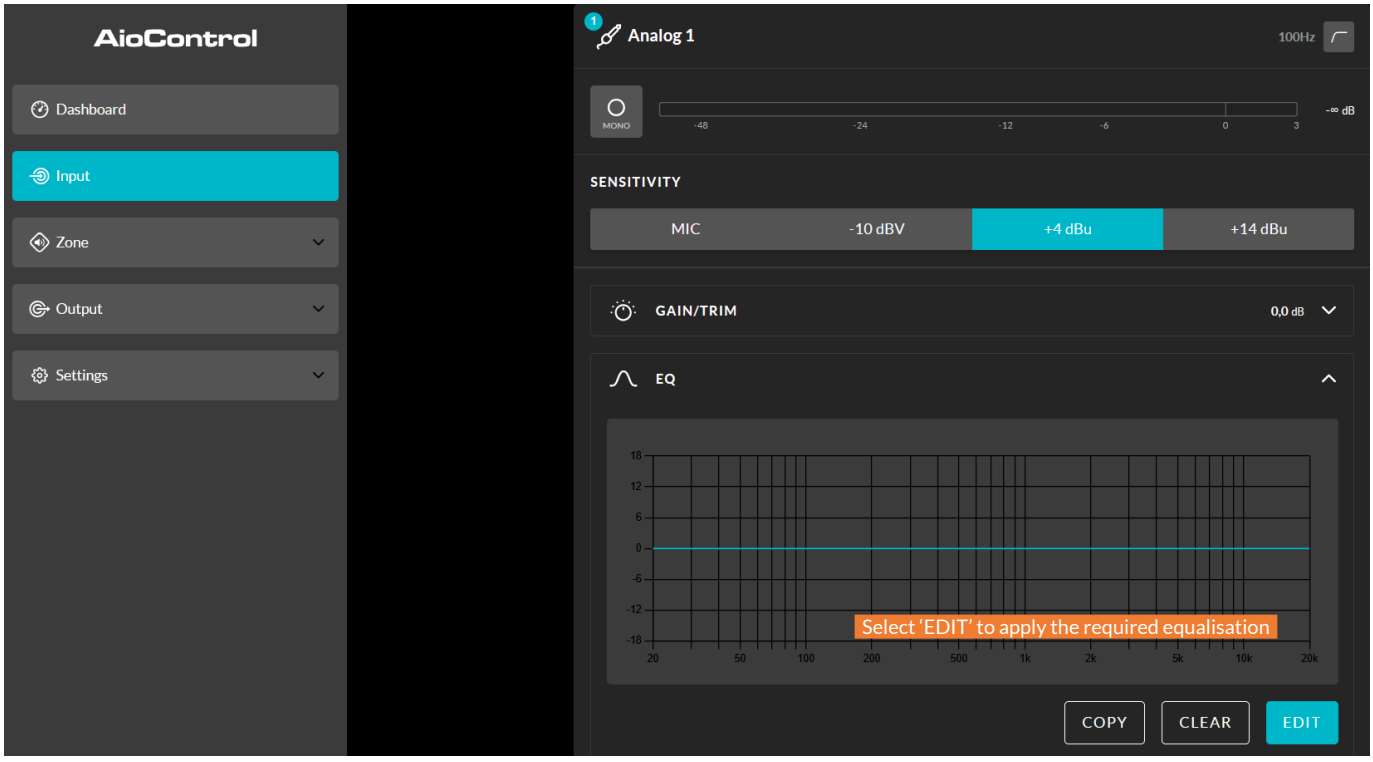


Figure 6C: Input equaliser display

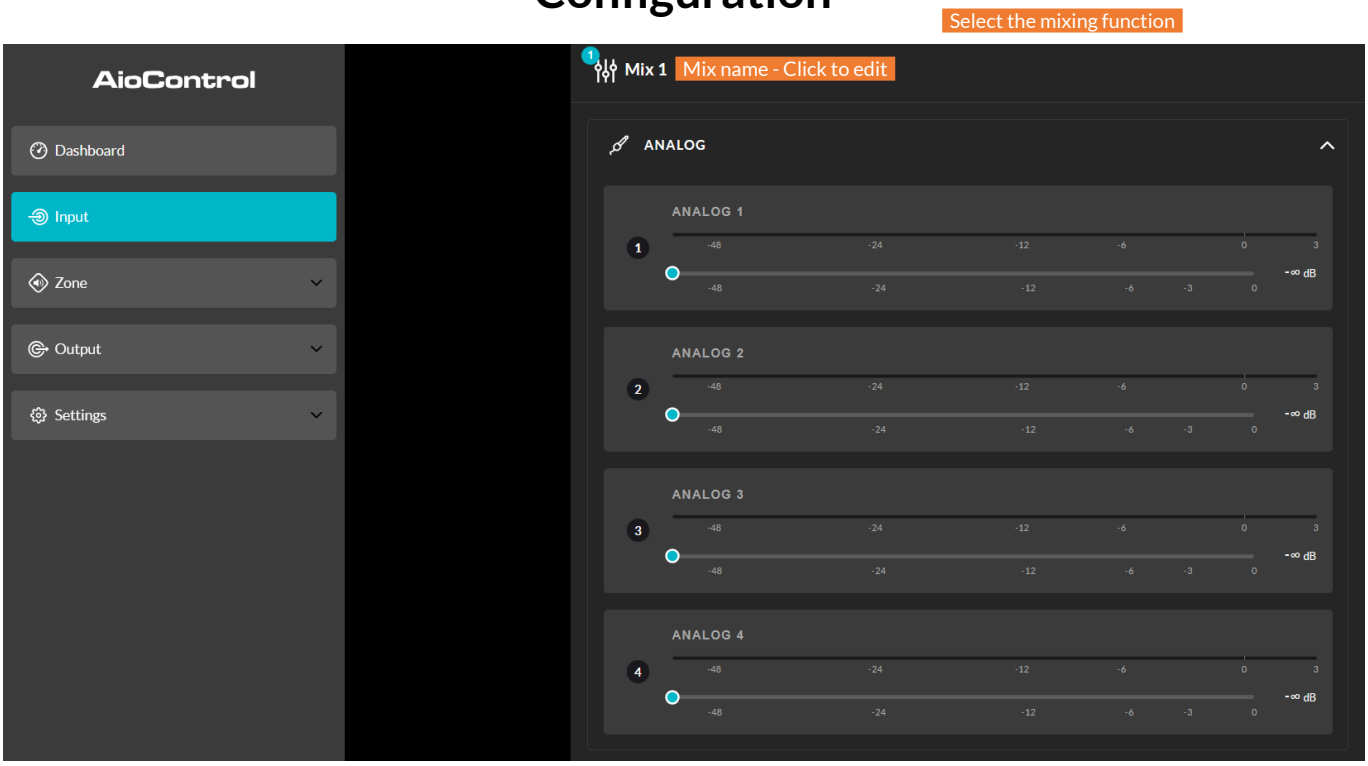


Diagram 6D

Displaying the input mix

6.3.2 'Zone' tab

The ' **Zone**' tab allows you to define and name installation zones, and provides access to other sub-menus. Zones may correspond, for example, to bar or restaurant areas, or to different rooms in a house. For all menus in the 'Zone' tab, the installation zone to be configured is selected by highlighting one of the zone identifiers (A to H, depending on the number of amplifier outputs) at the top of the screen. Figures 6E **and 6F** illustrate the **'Zone' and 'Source'**menu displays .

- The **Source** menu allows you to assign inputs to zones and configure input priority or input attenuation. The **Input Priority** function allows you to define up to three alternative inputs to the primary input on each zone. This offers the option to prioritise, replace or mute the input(s) routed to the zone when the alternative input(s) exceed a predefined level. The Primary Input is the main input, such as background music played in a shopping centre. 1. **Priority Low**, for example for adverts, takes priority over the main input. 2. **Priority Mid**, for example for announcements, takes priority over both background music and adverts. 3. **Priority High**, such as an emergency alarm, takes priority over all other inputs and mutes them.

The **'Input Ducking'** function allows a secondary input, **'Ducking Low'**, to override and attenuate **the main input routed to** the zone being configured when the level of this secondary input exceeds a predefined threshold.

***Note**: The 'Priority Low' parameters can be set either to their default values or to their threshold, attack, hold and release values, as required (Manual Mode). The "Priority Mid" and "Priority High" parameters can be set either to their default values or to their threshold and hold values, as required. All input priorities can also be configured to override the volume level set for the specified zone (Override zone volume).*

*The **Ducking Low** settings can be set either to their default values or to the desired threshold, depth, attack, hold and release values.*

- The **Volume menu allows you** to set the minimum and maximum volume limits for each zone and to apply external volume control via GPIO to individual zones. The GPIO configuration menu is located under the Settings tab **;** instructions on connecting an external volume control via the GPIO interface can be found in section 6.5 of this manual.

Note: If an amplifier is controlled via the API of a third-party control system, the volume limits set in the 'Input' tab will not apply.

- The **'Restrictions' menu** allows you to prevent zone inputs or input mixes from being routed to specific zones.

Note: Routing restrictions cannot be applied to entries in priority zones.

Note: If an amplifier is controlled via the API of a third-party control system, the input routing restrictions defined in the 'Input' tab will not apply.

Configuration

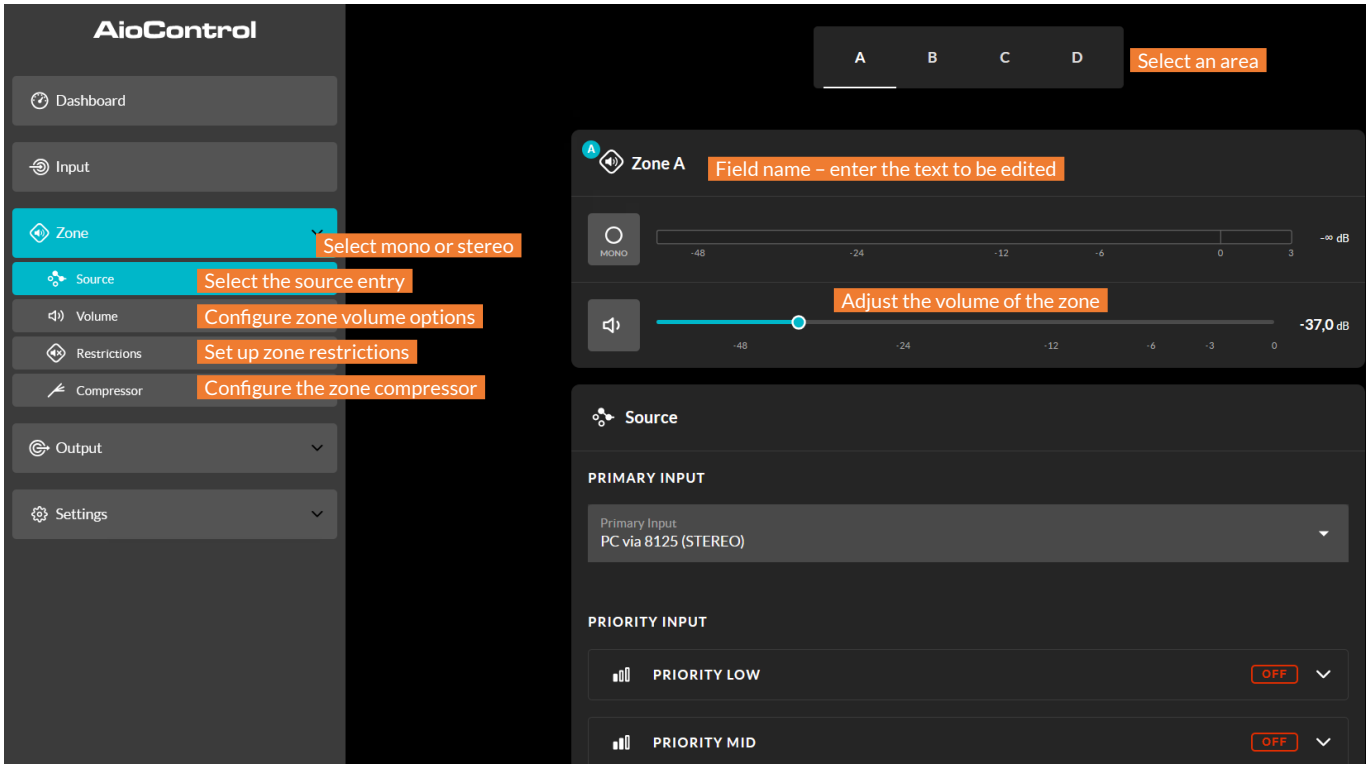


Figure 6E: The 'Zone' tab

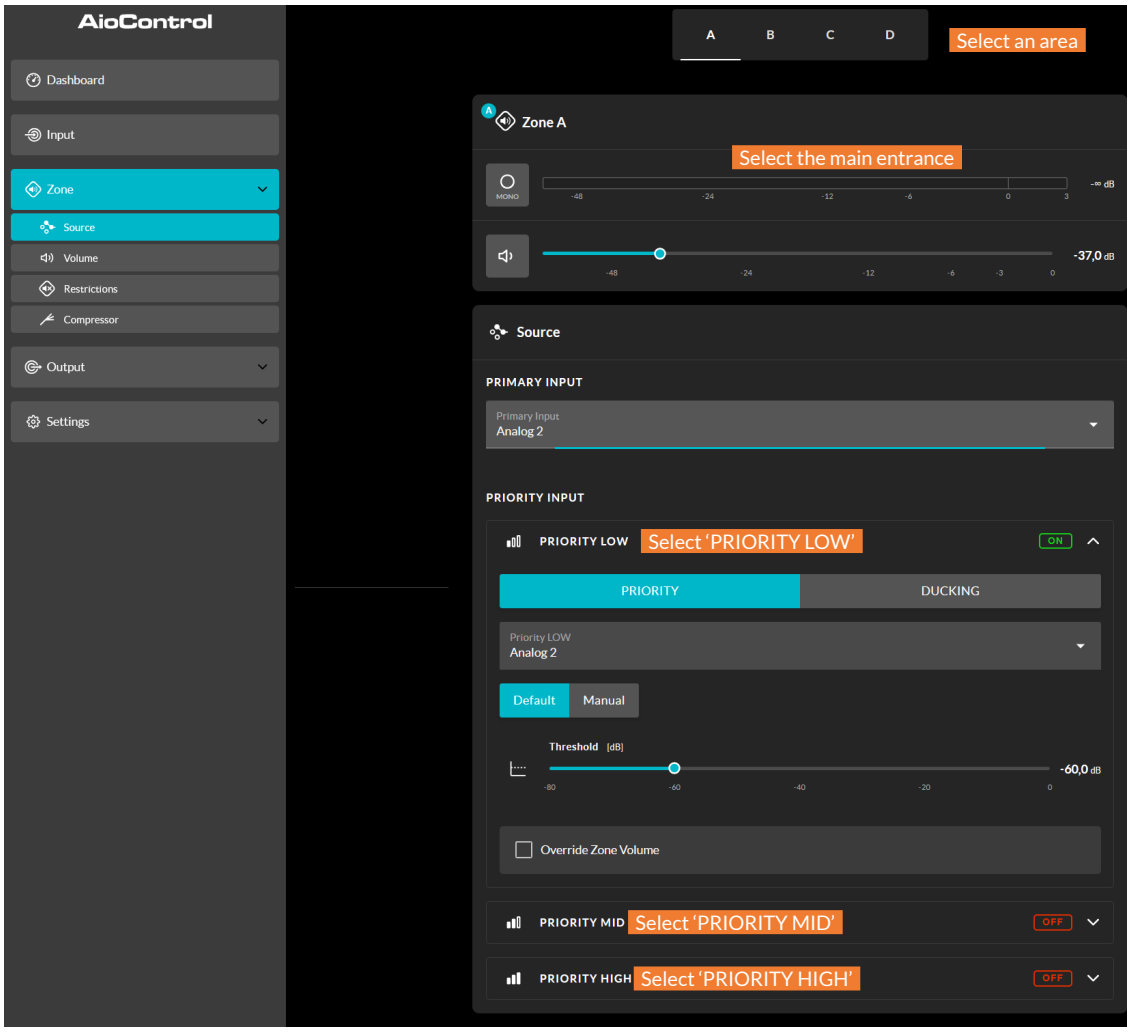


Diagram 6F

Displaying the 'Source **Zone'**menu

- The **'Compressor'** option allows you to apply default or custom signal compression to individual zones.

Note: Compression can be useful for reducing the volume difference between loud and quiet sections of an audio recording. The lower the compression threshold, the smaller the difference between loud and quiet sections will be. It may be necessary to increase the overall volume of the track when compression is used. The default compression settings are suitable for most setups.

6.3.3 'Output' tab

The **'Output'**tab allows you to name the amplifier's outputs, assign them to zones, and access the 'Delay' , 'Room Equalizer' and 'Speaker Preset' menus . Figure 6H shows the **'Output'**tab display .

For all menus in the **'Output'** tab , the amplifier output to be configured is selected by highlighting one of the output identifiers at the top of the screen.

Note: The number of individual outputs that can be configured depends on the amplifier model (**Aio4125 or Aio8125** *) as well as the configuration of the inputs, zones and output modes. The diagrams below show a four-output amplifier.*

- The **'Routing'** menu allows you to assign zones to the amplifier's outputs.

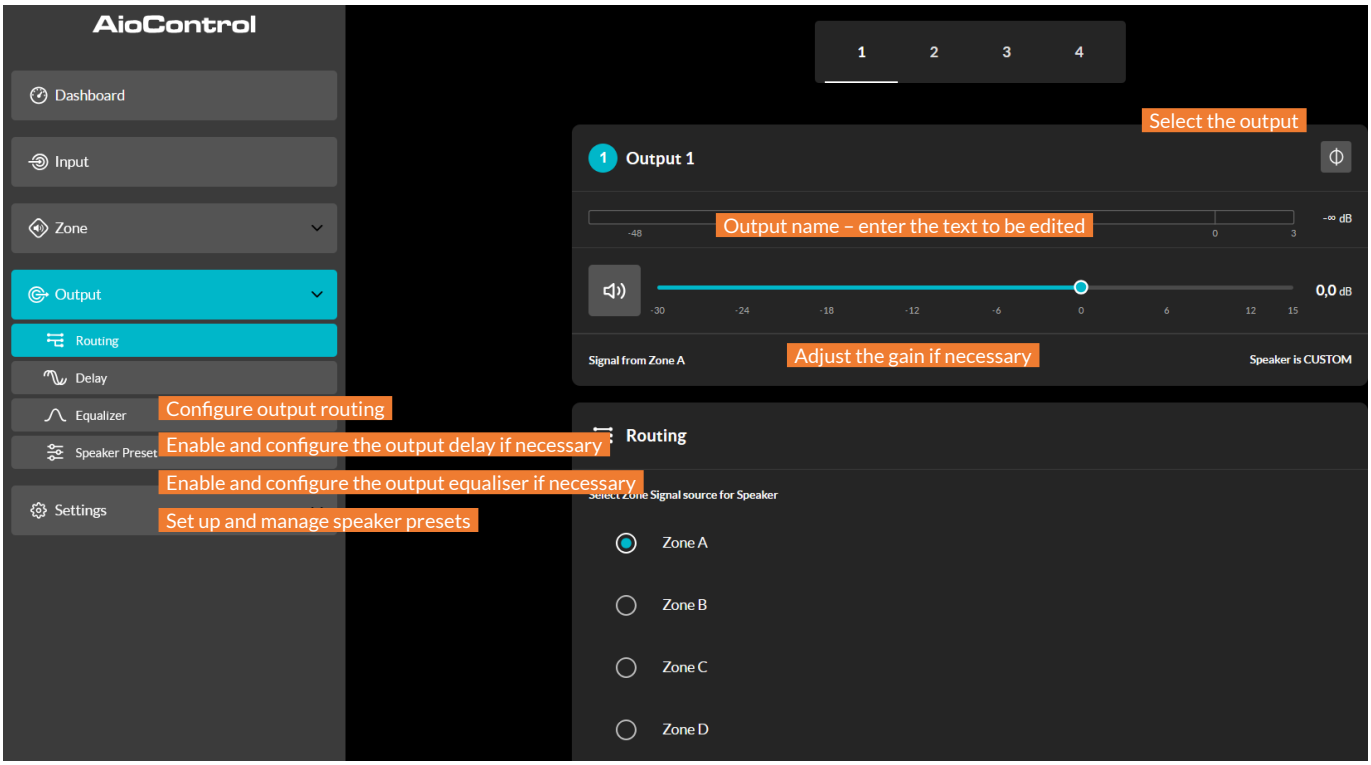


Figure 6G
Displaying the 'Output' tab.

Note: When routing zones defined as stereo, three output options are automatically available: left channel, right channel or combined mono signal. The combined mono signal can be used to drive a mono subwoofer or a 70/100 V mono speaker line.

- The **'Delay'** menu allows you to apply a delay effect to the amplifier's individual outputs.
- The **'Equalizer'** menu allows you to apply parametric equalisation to the amplifier's various outputs. The equalisation settings defined for one output can be copied and applied to the other outputs.

Configuration

- The '**Speaker Preset**' menu allows you to adjust a range of speaker settings, as well as create, export, import or reset preset configurations.

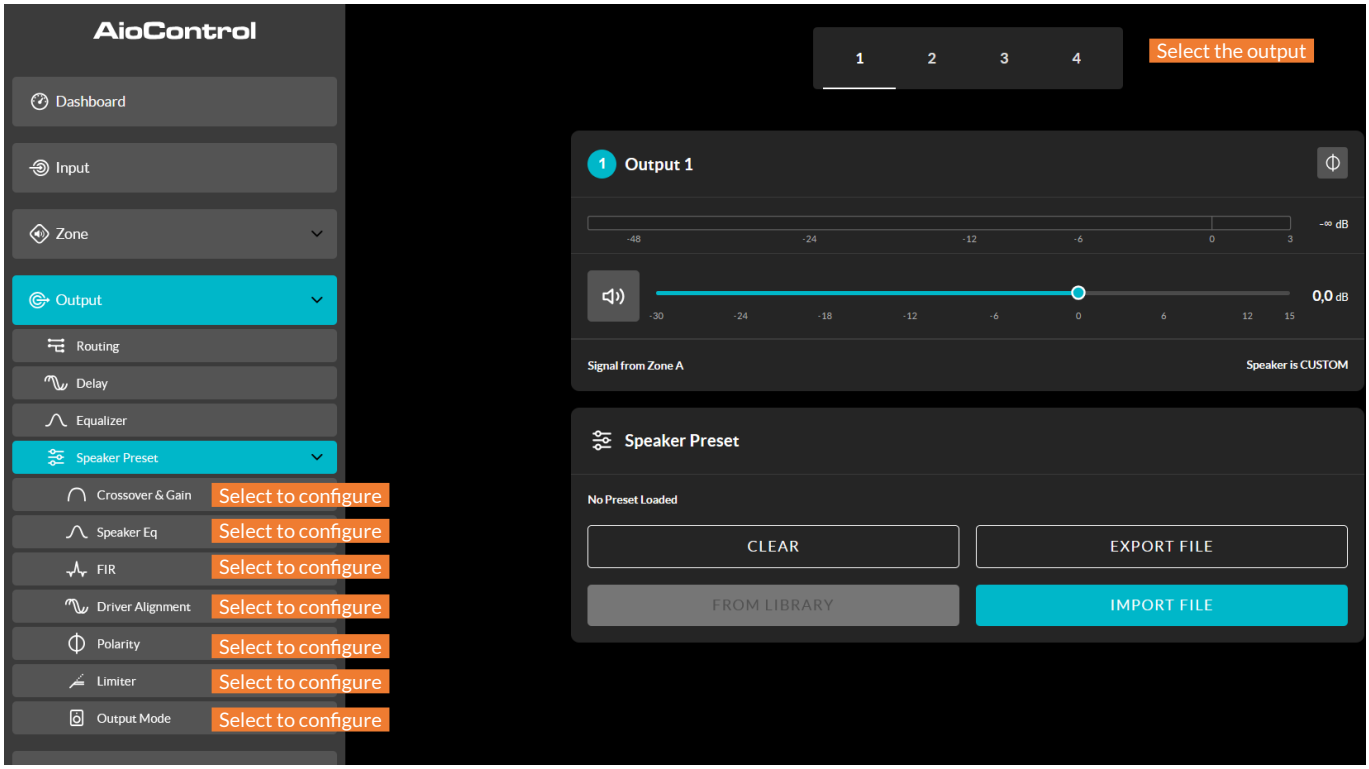


Diagram 6H

Speaker presets

Speaker presets can be easily applied to the selected amplifier output, or imported from a library, exported or deleted. Preset configurations may include all or some of the parameters described in section 6.3.4 and can be locked to prevent accidental changes. Figures **6I** to **6L** illustrate the application of speaker presets.

Speaker preset data provided by third parties for use with specific speakers can be imported and applied to the amplifier's outputs. To import the speaker preset settings, follow the steps described below and illustrated in the diagrams.

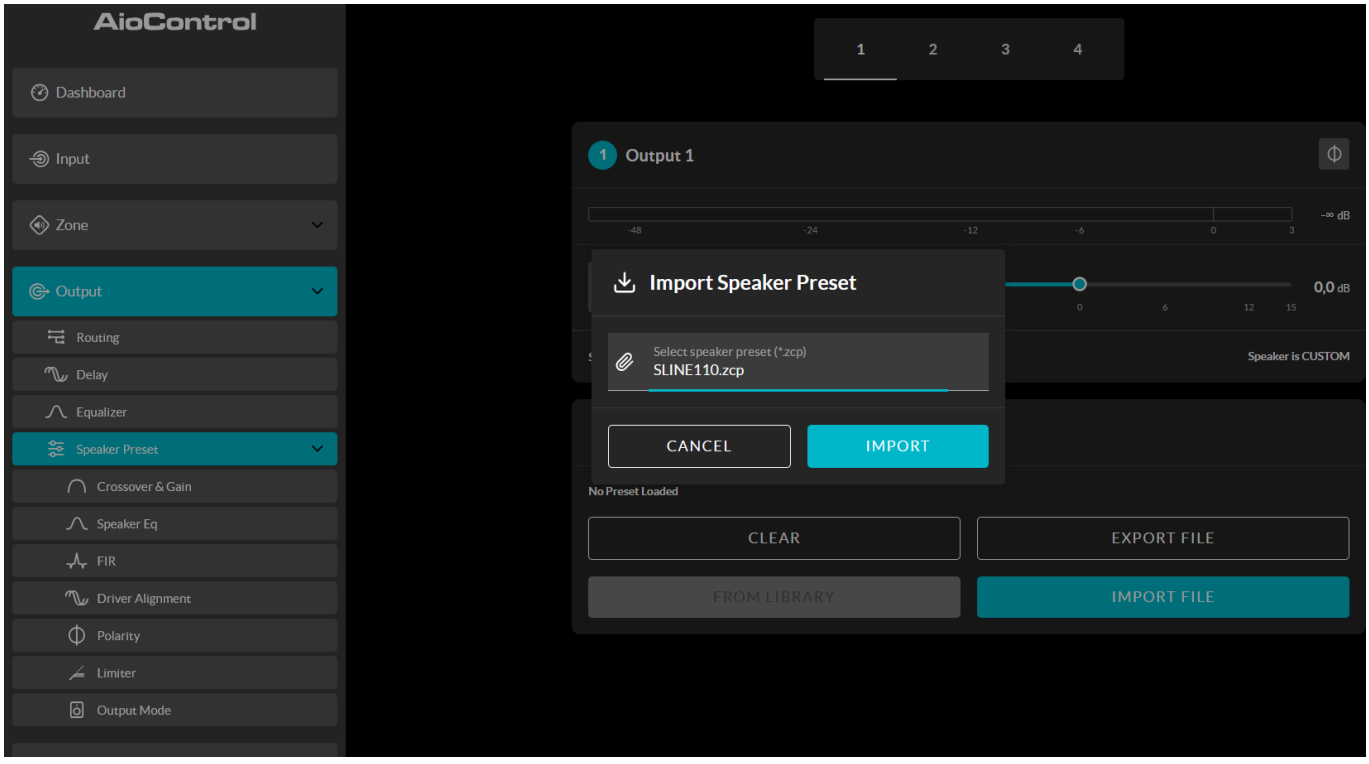


Figure 6I: Selecting the speaker preset import file

Configuration

1. Select **the 'IMPORT PRESET FROM LIBRARY'** or **'SELECT PRESET FROM FILE' option** from the **'Speaker Preset'** menu. If no import option appears, select **"CLEAR"** to delete all existing speaker preset data.

*Note: The '**SELECT PRESET FROM LIBRARY**' option will not be available if no speaker preset library has been created. The creation and management of speaker preset libraries are described in section 6.3.5.*

2. Select the appropriate speaker preset file in ".zcp" format to import from a library or folder on your computer. The preset data will be applied to the selected amplifier output as soon as the file has finished importing.

3. If the speaker preset settings need to be changed, you can customise them by selecting the 'CUSTOMISE PRESET' option.

Note: if an imported speaker preset file contains locked settings, these cannot be changed.

6.3.4 Settings in the speaker presets menu

- The **'Crossover & Gain'** presets menu allows you to apply high-pass or low-pass crossover filters, as well as adjust the gain, to each of the amplifier's outputs.
- The speaker EQ presets menu allows you to apply parametric equalisation to the amplifier's individual outputs.

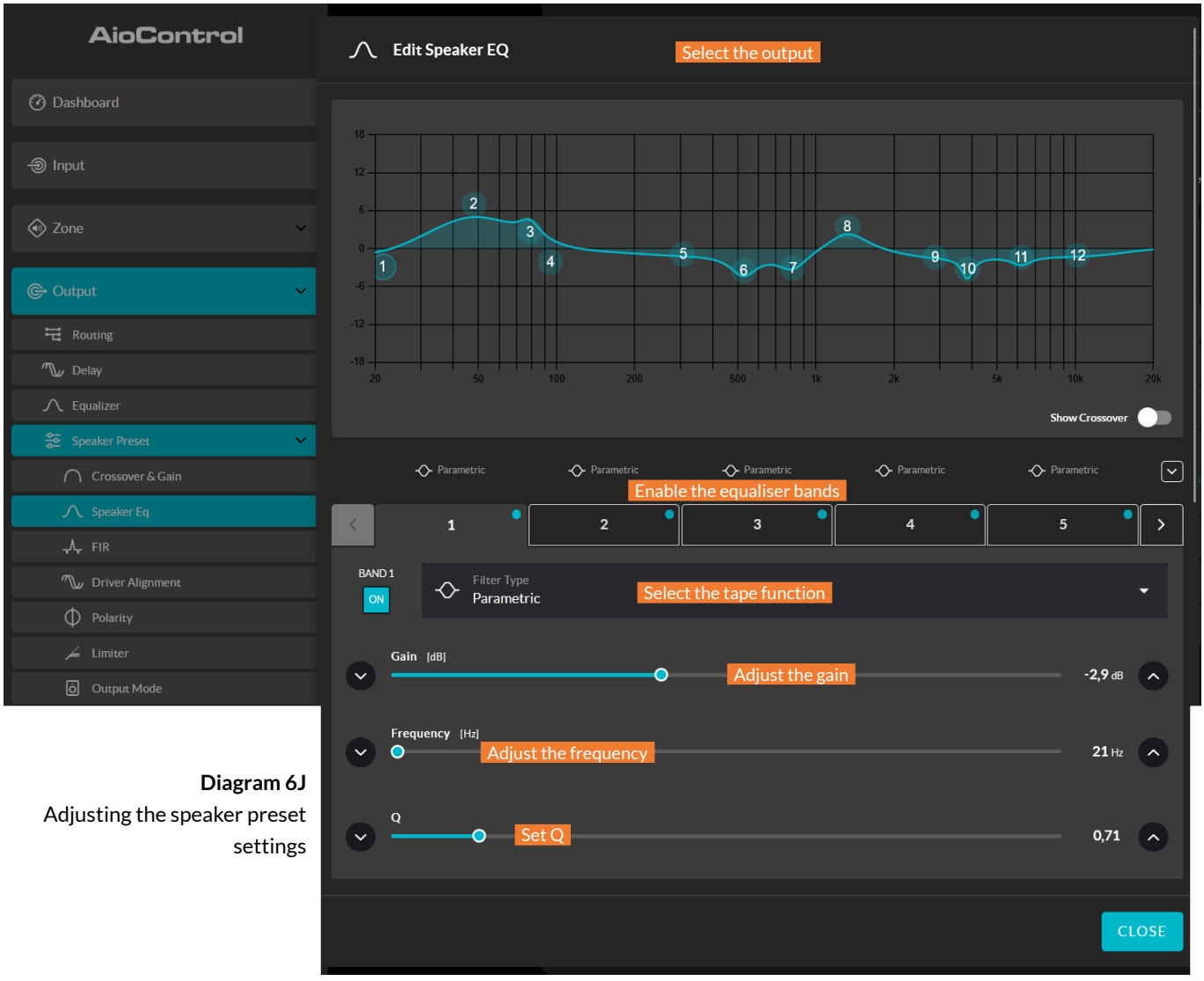


Diagram 6J
Adjusting the speaker preset settings

Configuration

- The **FIR** presets menu allows you to import FIR (Finite Impulse Response) equalisation filter coefficients generated by external speaker measurement software, and then apply them to the amplifier's individual outputs. The FIR filter features 512 samples at 48 kHz.

Note: FIR coefficient files in .csv or .txt format can be imported.

- The **'Driver Alignment** ' presets menu allows you to apply a delay to the amplifier's individual outputs.
- The polarity presets menu allows you to reverse the polarity of the amplifier's individual outputs.
- The limiter presets menu allows you to enable or disable signal limiting on each amplifier output. Peak limiting, peak-to-peak limiting and **RMS** limiting can be enabled individually or simultaneously. The peak limiting function offers two response time options: 'Fast' and 'Normal'. The peak limiting function can be set to 'Automatic' or 'Manual'. The RMS limiter has default settings that can be adjusted, but does not offer an automatic option.

Note: In automatic mode, the peak limiter settings adjust automatically according to the high-pass filter settings in Crossover & Gain.

- The output mode presets menu allows you to disable individual amplifier outputs or configure them in Lo-Z or Hi-Z mode. In Hi-Z mode, it is also possible to configure and apply a high-pass filter to the output. The number of available outputs depends on the amplifier model, the input configuration and the zone configuration. For example, a four-output amplifier will have four outputs if Lo-Z mode is selected, but only two outputs if Hi-Z or bridge mode is selected.

Note: Using a high-pass filter with speakers in Hi-Z mode helps to prevent any distortion caused by line transformer saturation at low frequencies. Start with the filter's default setting of 70 Hz. If distortion in the low frequencies is still audible, increase the frequency in small increments until the distortion disappears.

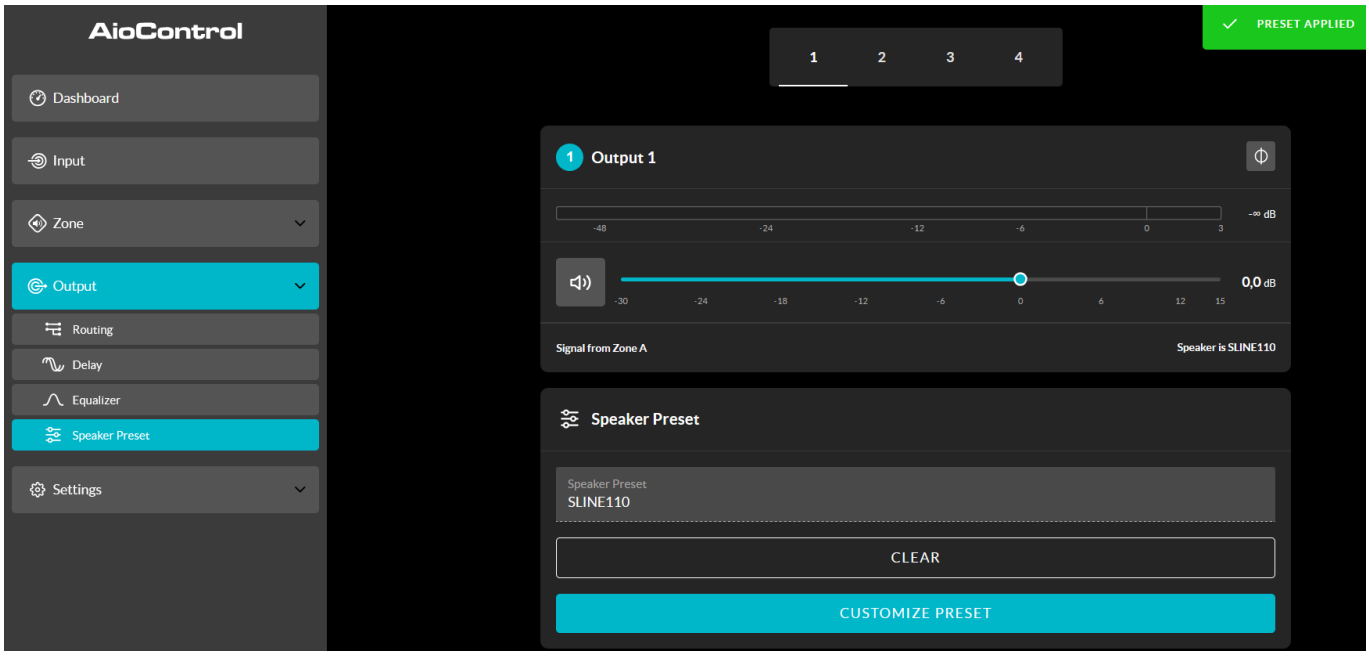


Diagram 6K
Speaker preset applied

6.3.5 'Settings' tab

The **'Settings'**tab allows you to configure various amplifier settings and save the installation data. The 'Settings' tab provides access to other sub-menus. Figure 6L shows the **'Settings'**tab .

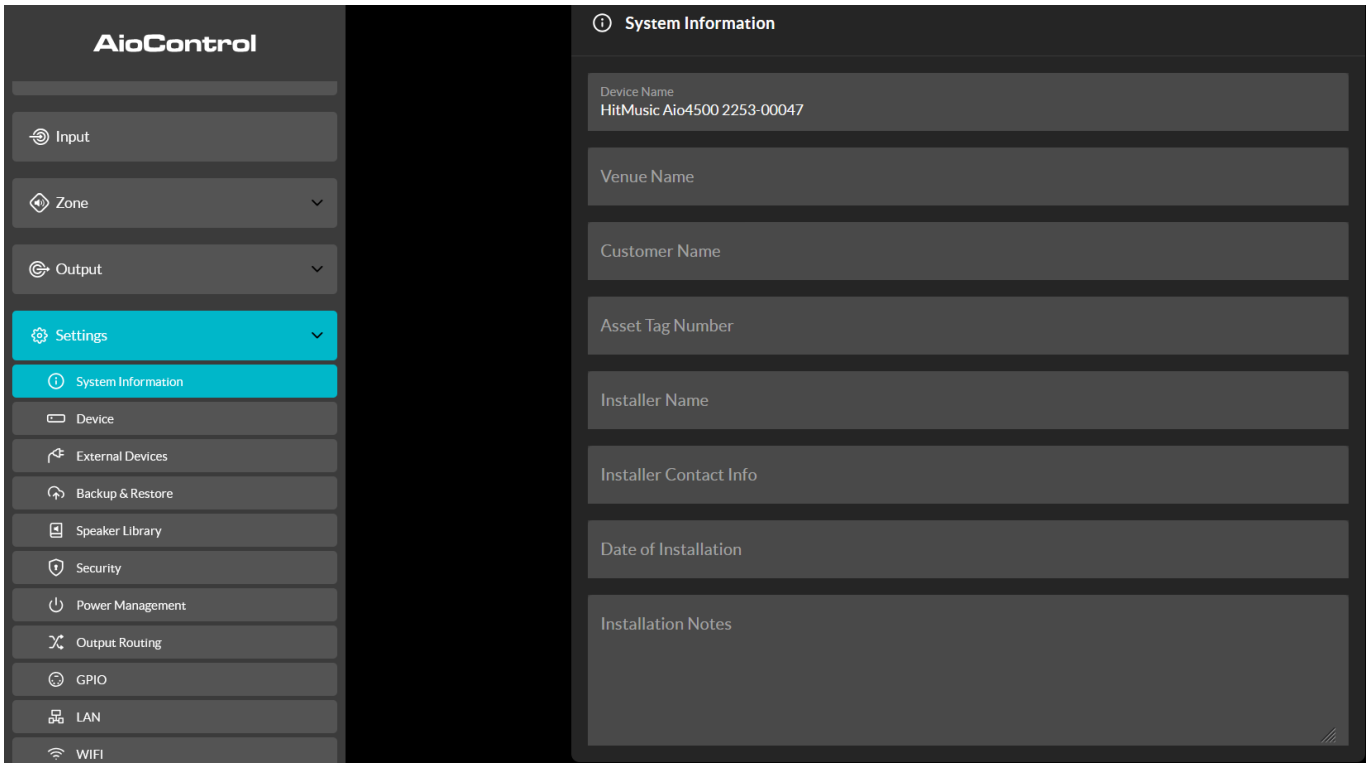


Figure 6L: 'Settings' tab menu

- The **'System Information** ' menu contains text fields for entering installation details.
- The **'Device'** menu contains information specific to the amplifier, such as the model number and firmware version. A firmware update function and an identification button are also available in this menu.
- The **'External Devices'** menu allows you to pair control panels with an amplifier and configure them. Depending on the product, installation and configuration, each device can remotely control one or more amplifier zones. Figure **6M** shows the **'External Devices'** menu display .
- The **'Backup & Restore'** menu allows you to download the amplifier's configuration data to an external storage device, as well as to load previously saved configuration files and apply them to the currently connected amplifier.
- The **'Speaker Library'** menu allows you to manage libraries of speaker presets. You can create or import existing libraries of speaker preset files (.zcl), as well as edit or completely delete existing libraries. Figure **6N** illustrates the creation and management of speaker preset libraries.
- The **'Security'** menu allows you to set a password to prevent unauthorised access to the amplifier's Control app. Password protection is particularly important when an amplifier is connected to a wired network, as the Wi-Fi password is then no longer required to access the AioControl app.

Note: We recommend using a different password for the control app and the one required to access the amplifier via Wi-Fi.

- The **'Power Management'** menu allows you to enable various automatic start-up options. It also offers programmable sleep and mute functions.
- The **'Output Routing'** menu allows you to route specific inputs or zones to the amplifier's S/PDIF outputs. The output level can also be adjusted.

Any zone or input can be routed to either of the digital outputs, including inputs that are not actively assigned to a zone. The status of the input (whether it is a main or priority input) is irrelevant. The specified input is always routed to the specified output so that it is available to downstream devices.

Note: When a zone is selected for S/PDIF digital output, the output signal is variable. However, when an input signal is routed to an S/PDIF output, the signal is fixed.

Note: The digital output function is particularly useful when amplifiers need to be connected in series and a specific input—such as a central PA microphone—needs to be routed to multiple amplifiers.

- The **'GPIO'** menu allows you to configure the pins on the versatile GPIO interface. You will find a detailed description of each setting in the 'GPIO' section.
- The **'LAN'** menu allows you to configure and reset the options and settings for the wired network.
- The **'Wi-Fi'** menu allows you to configure and reset wireless network options and settings.

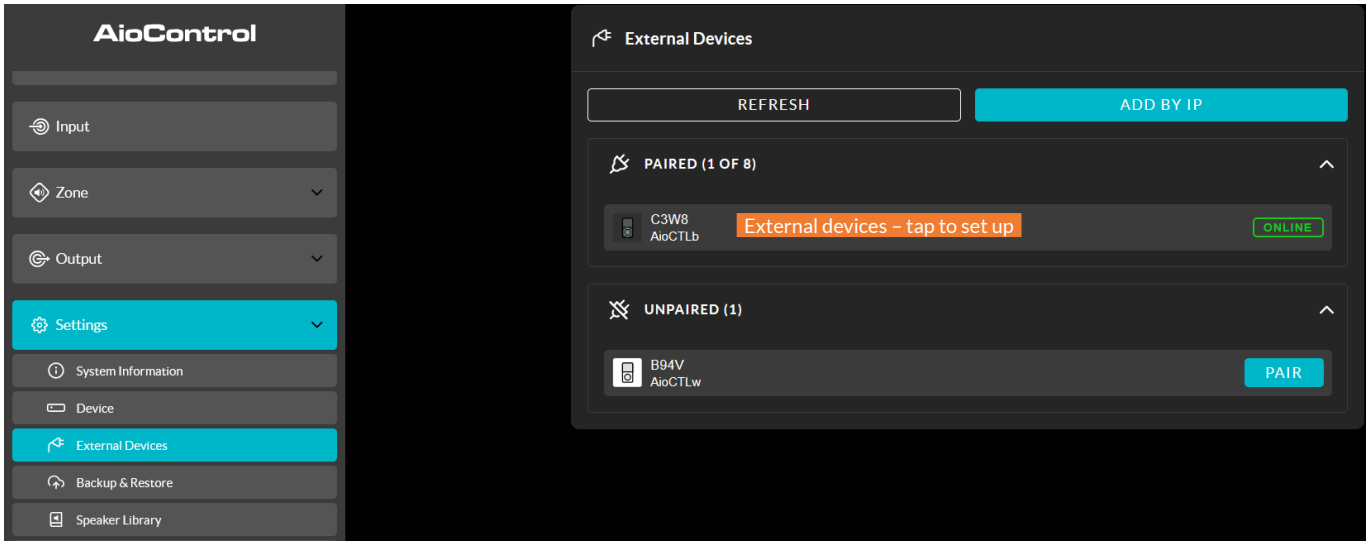


Figure 6M: The 'External Devices' screen

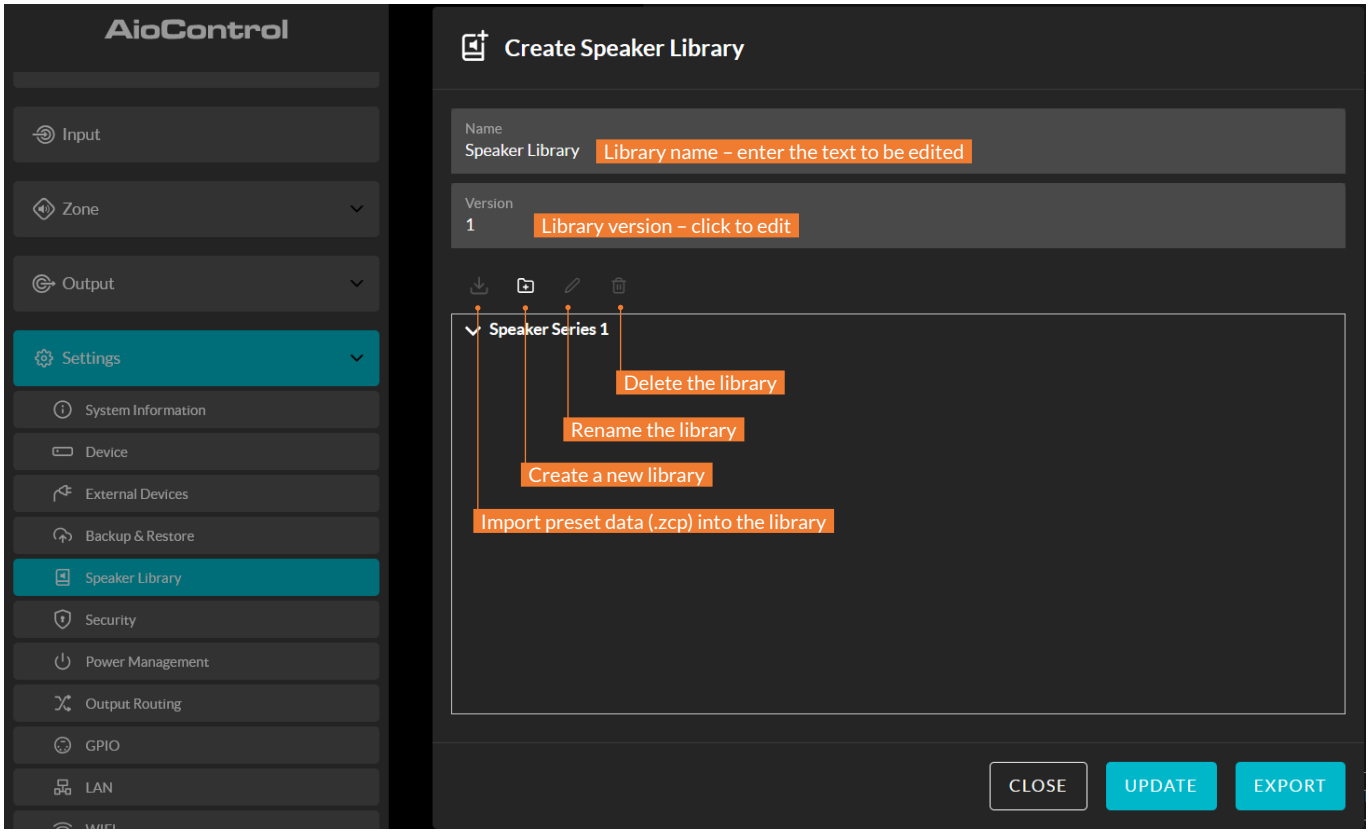


Figure 6N: Creating and managing the speaker library

6.4 Signal configuration and routing

Thanks to their network configuration features, the **Aio4125 and Aio8125** amplifiers offer great versatility in terms of sources, signal routing, installation zones and output modes. Inputs can be freely assigned to installation zones, and these zones can in turn be freely assigned to the amplifier's available outputs, in either Lo-Z or Hi-Z mode.

This versatility means, for example, that a single amplifier can drive both low-impedance and high-impedance speakers simultaneously, or route different inputs to different output zones.

The following sections describe and illustrate the recommended procedure for configuring the routing of inputs, zones and outputs. A general diagram of the signal flow is also shown in **Figure 6O.**

6.4.1 Configuring inputs

Open the configuration dashboard and select the **'Input'** tab . The 'Input' tab is shown in Figure **6B.**

- To change the default names of the entries, simply select the 'Entry name' field and enter the new name.
- Set a mono or stereo input by selecting the appropriate option. Setting a stereo input will reduce the total number of separate inputs available.
- Select an input sensitivity option from the drop-down menu: the options +14 dB, +4 dB, -10 dB and 'microphone' are available. As a general rule, the +14 dB or +4 dB options are suitable for professional audio sources with balanced outputs, whilst the -10 dB option is better suited to consumer audio sources with unbalanced outputs. The "microphone" option offers the significantly higher sensitivity required for microphones.

Note: Only dynamic microphones can be connected. Phantom power for condenser microphones is not provided.

- If necessary, adjust the input gain using the slider or the up/down icons. The gain control is designed to allow for precise adjustment of the output level after initial use. If necessary, adjust the input equalisation using the 5-band equaliser.

6.4.2 Zone configuration and routing

Open the configuration dashboard and select the **'Zone'** tab . The 'Zone' tab is shown in Figure **6F.**

- Select the zone to be configured. The number of available zones and their channel format (stereo or mono) depend on the amplifier model, the input configuration and the output mode (Lo-Z or Hi-Z).
- A four-output amplifier can be configured for the following zones:
  - 2 low-impedance stereo zones
  - 4 low-impedance mono zones
  - 2 high-impedance mono zones
  - 1 high-impedance mono zone + 1 low-impedance stereo zone
  - 1 high-impedance mono zone + 2 low-impedance mono zones
- An eight-output amplifier can be configured for the following zones:
  - 4 low-impedance stereo zones
  - 8 low-impedance mono zones
  - 4 high-impedance mono zones
  - 2 high-impedance mono zones or + 2 low-impedance stereo zones
  - 2 high-impedance mono zones or + 4 low-impedance mono zones

Note: When configured in Hi-Z mode, the **Aio4125 and Aio8125** *amplifiers operate in 'bridged' mode, in which the outputs of two channels are combined. This means that the number of output channels available in Hi-Z mode is half that available in Lo-Z mode.*

BTL mode is only permitted for speakers with an impedance of 8 ohms or more.

Note: Mono signals may be mono at the source, obtained either by combining the left and right channels of a stereo signal (summed mono) or by processing the left and right channels of a stereo signal independently (split mono).

- Name the zones by entering a name in the 'Zone name' field.
- Adjust the volume for the area using the slider if necessary.
- Define a mono or stereo zone by selecting the appropriate option. Defining a stereo zone will reduce the total number of additional zones available.
- Select an input for the zone from the drop-down menu. If you select a stereo input for a mono zone, the stereo channels will automatically be combined into mono.

Configuration

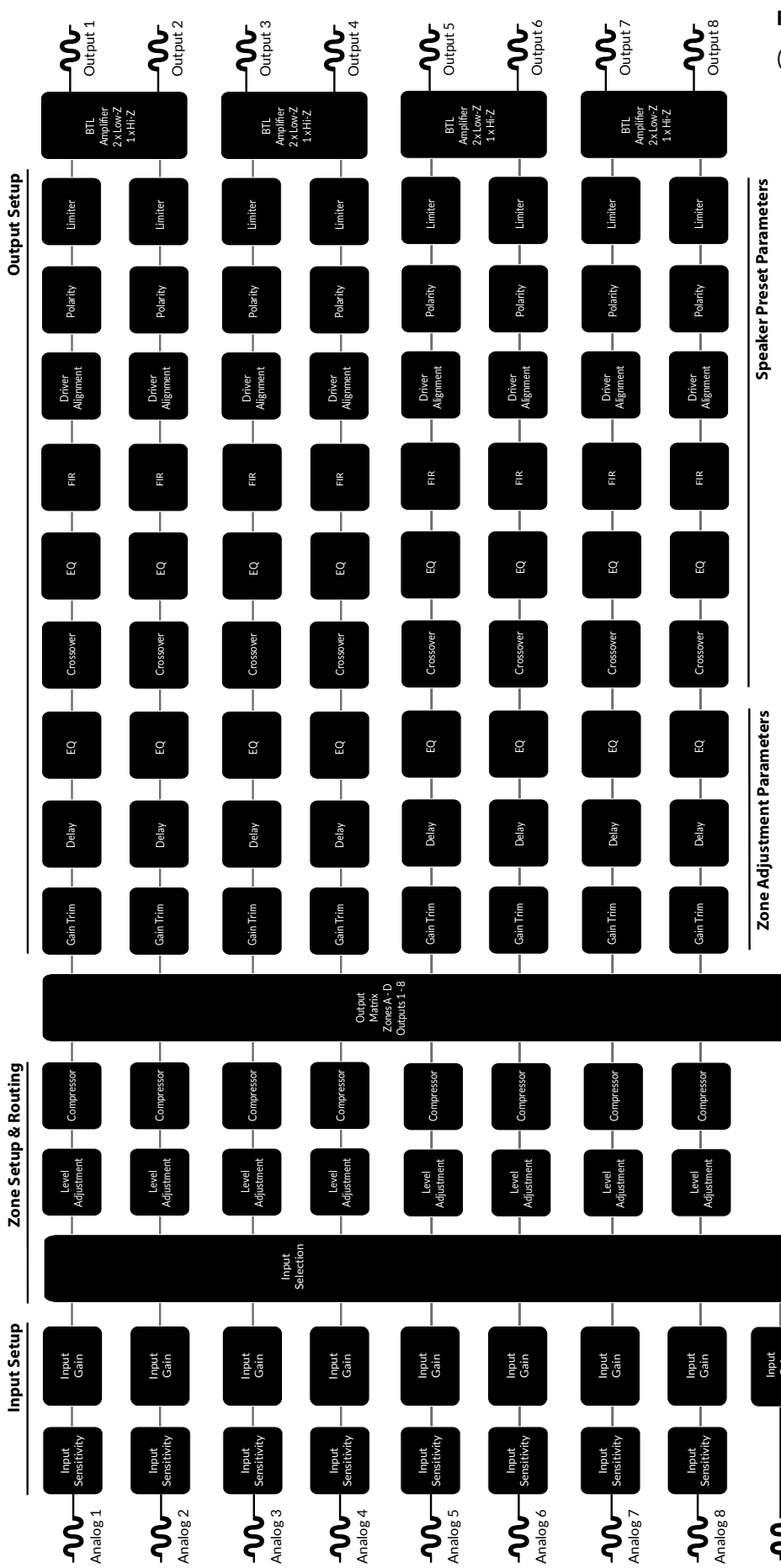


Figure 6O: Signal flow diagram (eight-channel amplifier)

Configuration

6.5 Configuring and connecting the GPIO pins

The **Aio4125 and Aio8125** amplifiers are fitted with a GPIO connector that allows remote control of volume, standby, mute and trigger functions. The functions of the GPIO connector pins are described in the **'GPIO'** menu shown in Figure **6P**. The connection of the remote volume and standby/mute controls via GPIO is shown in Figures **6Q** and **6R** respectively.

Note: Under no circumstances should the GPIO connector be used for purposes other than those for which it was designed. Incorrect use of the GPIO may damage the amplifier.

Note: You must use a shielded cable to connect the sleep switches and potentiometers via the GPIO pins.

Note: GPIO pin 8 has a low output impedance and can supply a maximum current of 10 mA.

Note: GPIO pins 1 and 3 both provide a ground connection: pin 1 is connected directly to the amplifier chassis. Pin 3 is connected to the chassis via a 220-ohm resistor. The 'floating ground' connection on pin 3 may be useful for managing ground loops that could cause audible humming.

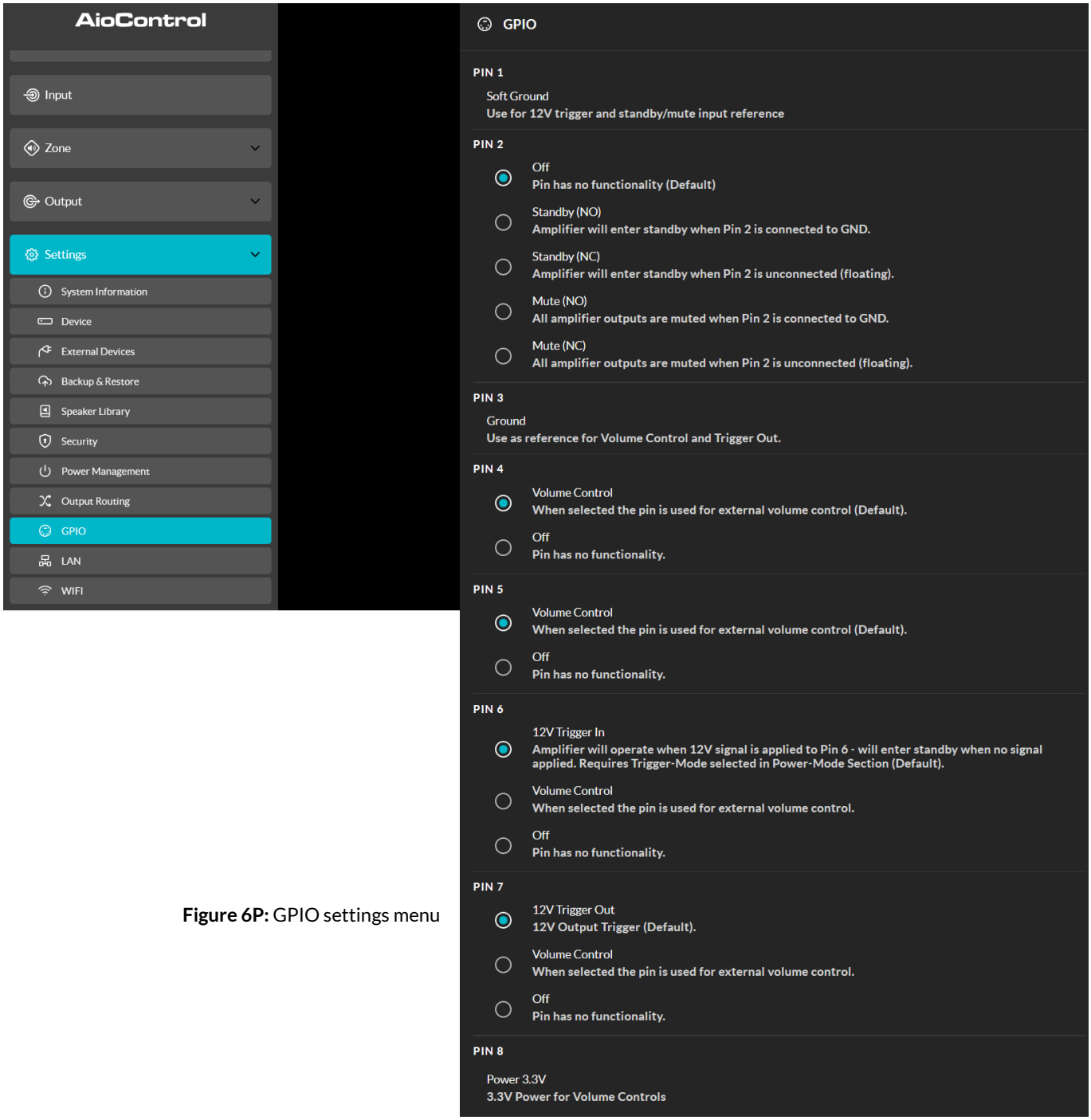


Figure 6P: GPIO settings menu

Configuration

Diagram 6Q

: Connection of potentiometers for remote volume control via GPIO.

Note: Figure 7E illustrates one way of using the GPIO connector.

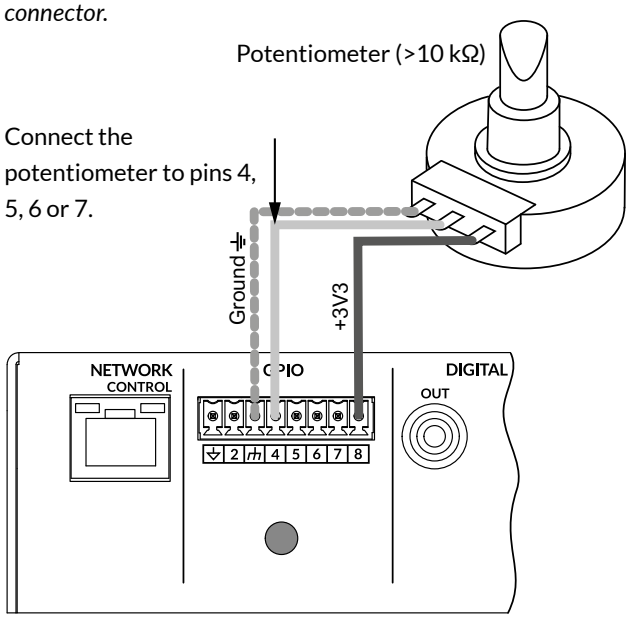
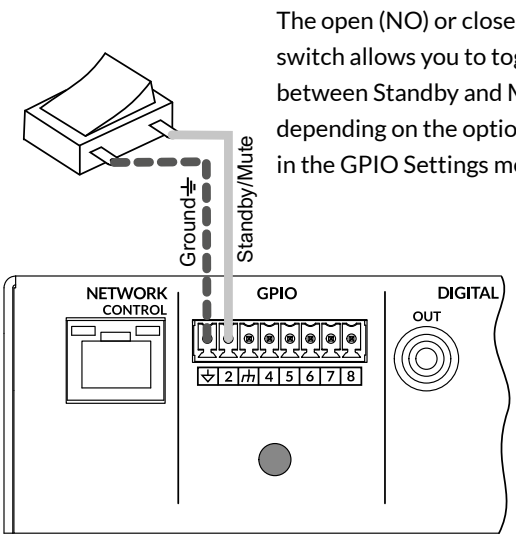


Diagram 6R

: Connections for the remote standby/mute switch via GPIO.

Note: Figure 7E illustrates one way of using the GPIO connector.



Connections

7. Connections

The rear panel connections for the Aio4125 **and Aio8125**amplifiers are shown in Figures **7A and 7B.**

7.1 Mains connection

The**Aio4125 and Aio8125amplifiers** are fitted with a universal power supply with power factor correction and can operate with a mains input voltage of between 100 V AC and 240 V AC at 50/60 Hz. Use the power cable supplied with the amplifier.

The**Aio4125 and Aio8125amplifiers** do not have a power switch and are operational as soon as they are connected to the mains. **Ensure that all signal, GPIO and output connections are properly established before connecting the amplifier to the mains.**

7.2 Connecting the inputs

The **Aio4125 and Aio8125** amplifier models offer four or eight balanced or unbalanced analogue audio inputs, as well as a stereo S/PDIF digital audio input. Any input channel can be routed to any output channel. Input routing options can be configured via the amplifier's web interface. See section **6** of this manual.

analogue **inputs**The analogue inputs on the **Aio4125 and Aio8125** models are line-level inputs, with a default input sensitivity of +4 dBu (maximum output voltage amplitude/sensitivity) in all output modes. Input signal levels of up to +24 dBu can be processed without clipping. Input sensitivity options can be configured via the amplifier's web interface. See **section 6** of this manual.

The balanced input connections to the amplifiers are made using 'Euro Block' male connectors. Figure **7C** shows how to connect the cables to the female input connectors provided **.**

The unbalanced input connections on the amplifiers are via RCA sockets connected in parallel with the balanced inputs.

Digital outputs

On the**Aio4125 and Aio8125models** , the S/PDIF stereo digital audio output is provided via a single RCA socket. The S/PDIF output signal can be sourced from any input or zone and is intended for the daisy-chain connection of **Aio4125 and Aio8125** amplifiers.

Note: For more information on configuring digital outputs, see the sections on output routing in section 6.3.3.

Note: It is recommended that you always use 75 Ω RCA cables specifically designed for digital audio for S/PDIF connections. Standard RCA cables can be used, but their performance may not be optimal.

Note: The S/PDIF output level is set to -10 dB by default to reduce the risk of clipping in the downstream input.

7.3 Output connections

The amplifier output connections are made using 'Euro Block' male connectors. Please ensure that the speaker polarity is correct throughout the installation:

When connecting low-impedance (Lo-Z) speakers, the positive (+) terminals on the amplifier must always be connected to the positive terminals on the speakers, and the negative (–) terminals on the amplifier must always be connected to the negative terminals on the speakers.

When connecting Hi-Z speakers, both wires of the speaker cable must be connected between the positive (+) terminal of output 1 and the negative (-) terminal of output 2; the same applies to any additional Hi-Z outputs.

The output mode options (Lo-Z or Hi-Z) can be configured via the amplifier's network interface. See section **6** of this manual.

Figure 7D shows how to connect the cables to the female output connector provided.

7.4 Speaker cable cross-section

The diameter of the**speaker** connection cables for**the Aio4125 and Aio8125** should be selected according to the type of installation. The tables opposite show the appropriate cable diameter required to achieve a signal loss of less than 0.5 dB, depending on the different types of installation and cable lengths.

7.5 GPIO connections

If you need to use the GPIO features of the **Aio4125 and Aio8125** models, you will need to connect the cables to the GPIO connector provided. The connection of the cables to the GPIO connector is shown in diagrams **7E**.

7.6 Network connections

AioControl

The**Aio4125 and Aio8125amplifiers** are devices connected to a TCP/IP network that are configured via a web interface. Both wired (Ethernet) and wireless (Wi-Fi) connection options are available. Connecting the **Aio4125 and Aio8125** amplifiers to a TCP/IP network is described in section **6** of this manual. If you are using a wired connection, plug an Ethernet cable into the rear panel of the amplifier

Connections

Figure 7A

: Rear panel connections for the **Aio4125** amplifier **.**

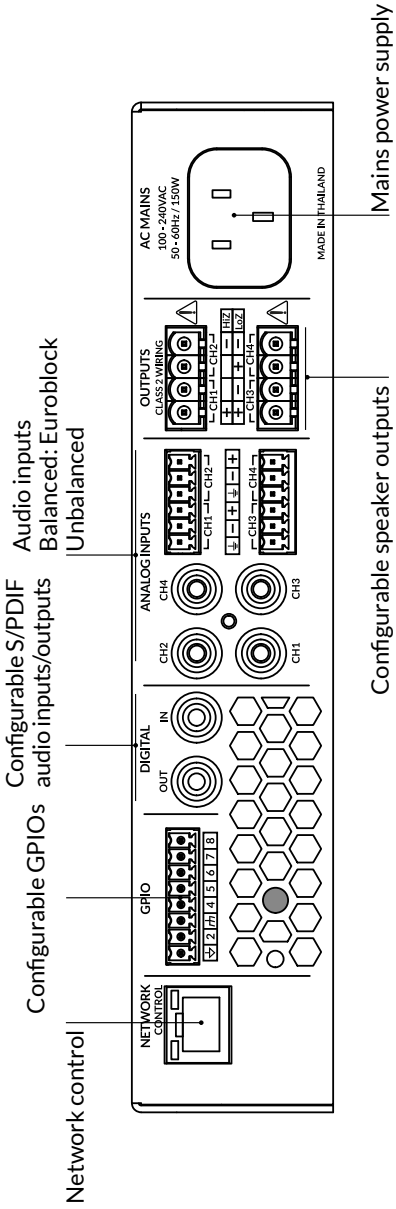
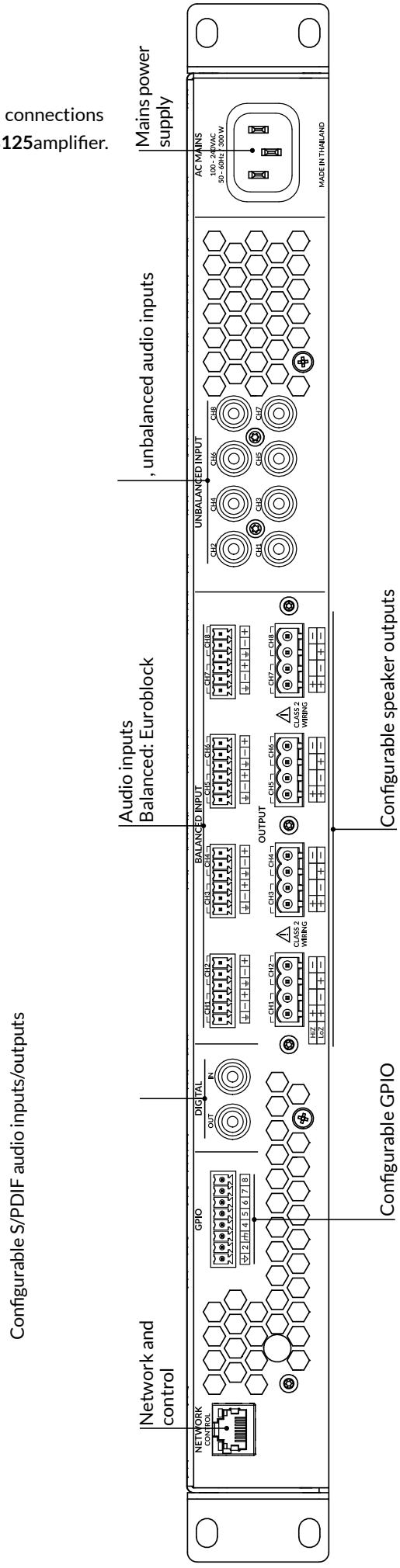


Figure 7B

: Rear panel connections on the **Aio8125**amplifier.



Connections

Cable cross-section chart: Lo-Z installations, 0.5 dB attenuation. 4 Ω and 8 Ω loads

Cross-section of the cable (mm^2)	Cable gauge (AWG)	Maximum cable length (in metres, 4 Ω load)	Maximum cable length (in metres, 8 Ω load)
0.75	≈18	5	10
1.5	≈16	10	20
2.5	≈14	17	35
4.0	≈12	28	55

Cable cross-section table

70 V Hi-Z installations, 1.0 dB attenuation

20 speakers evenly spaced

Cross-section of the cable (mm^2)	Cable gauge (AWG)	Maximum cable length (in metres), (125 W per channel)	Maximum cable length (in metres), (250 W per channel)
0.75	≈18	90	45
1.5	≈16	180	90
2.0	≈14	<250	150
3.5	≈12	<250	<250

Note: the length of the cables must not exceed 250 m.

Cable cross-section chart

100 V Hi-Z installations, 1.0 dB attenuation

20 speakers evenly distributed

Cross-section of the cable (mm^2)	Cable gauge (AWG)	Maximum cable length (in metres), (125 W per channel)	Maximum cable length (in metres), (250 W per channel)
0.75	≈18	190	90
1.5	≈16	<250	180
2.0	≈14	<250	<250
3.5	≈12	<250	<250

Note: the length of the cables must not exceed 250 m.

Connections

Figure 7C
Inputcable connections balanced analogue.

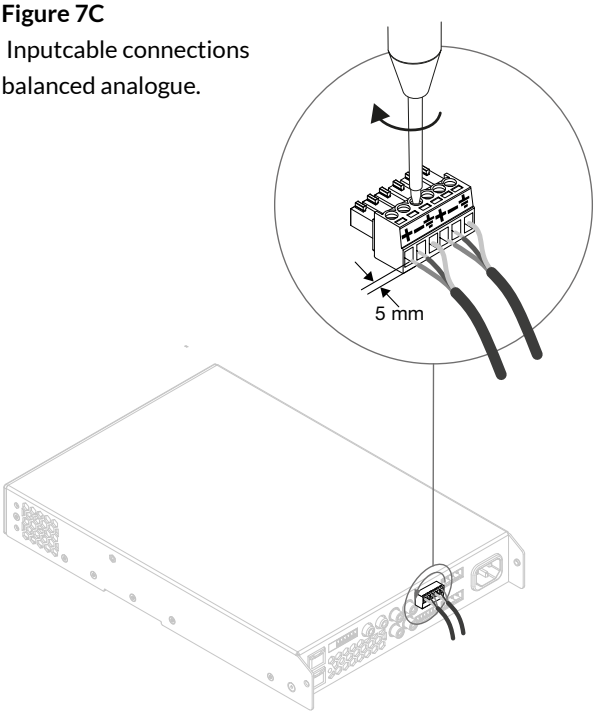


Figure 7E:GPIO cable connections .

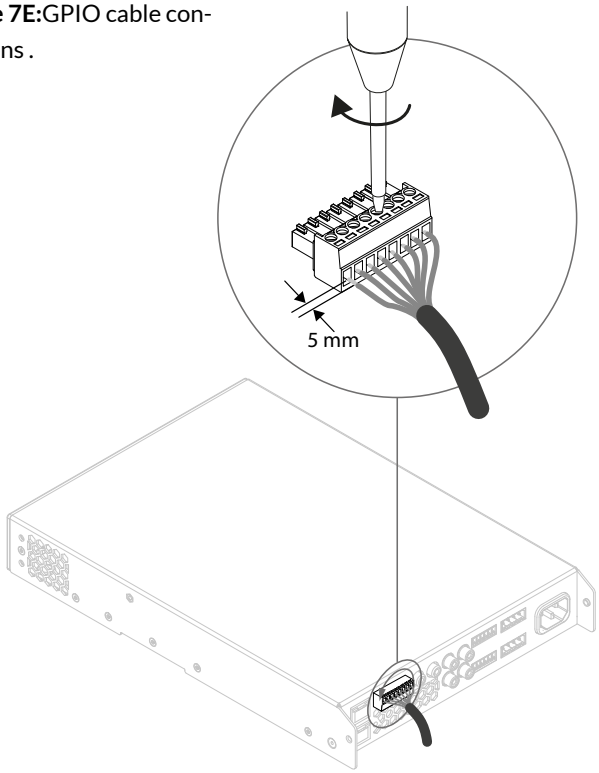
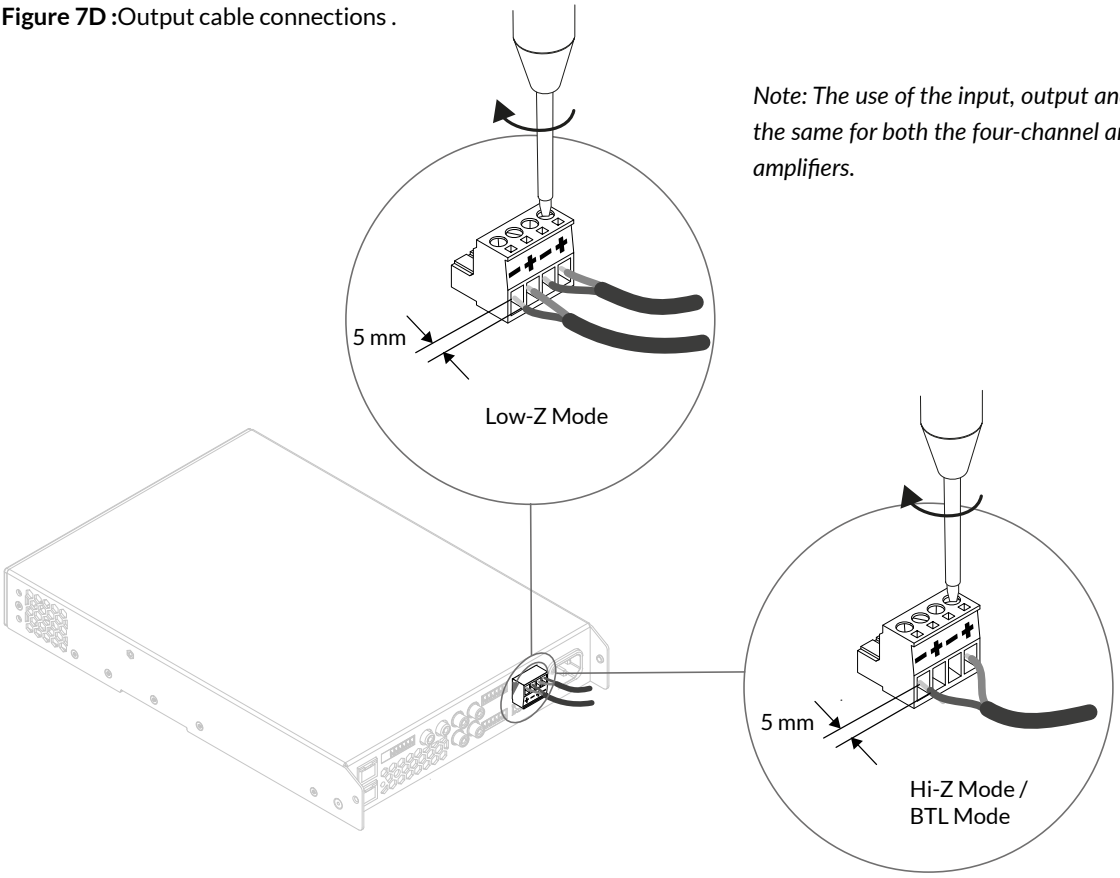


Figure 7D : Output cable connections .



Note: The use of the input, output and GPIO pins is the same for both the four-channel and eight-channel amplifiers.

The exclamation mark printed next to the amplifier output terminals, together with the words 'CLASS 2 WIRING', is intended to alert users to the risk of dangerous voltages. Output connectors that may present a hazard are marked with this exclamation mark. Do not touch the output terminals whilst the amplifier is switched on. Make all connections whilst the amplifier is switched off.

How it works

8. How it works

Once all connections have been made and the configuration options selected, the Aio4125 and Aio8125 amplifiers are ready for use. If an input signal greater than -60 dB is present on any of the inputs, the 'Input' and 'Standby' indicators on the front panel will light up green to indicate that the amplifier is operating normally. The sound will then be played through the connected speakers.

Note: The **Aio4125 and Aio8125** *amplifiers do not exit standby mode unless an input signal is present, an 'ON' network command is received, or an external standby switch (or 12 V trigger) is activated. The standby behaviour can be configured via the 'Power Management' menu in the 'Settings' tab.*

The amplifier's outputs are muted if no input signal is detected for 5 minutes, and the amplifier automatically switches to standby mode if no signal is detected on any input for more than 15 minutes. Different time delays for standby and mute can be selected via the **'Settings'** tab . The speed of the amplifier's cooling fan is regulated according to the temperature. The fan stops when the amplifier enters standby mode.

8.1 Front panel indicators

The indicators on the front panel of the **Aio4125 or Aio8125** amplifiers light up to indicate the following operating states:

Status: Off – Mains power disconnected.
Green – Amplifier in operation.
Flashing green – Standby mode.
Amber – Standby mode triggered by GPIO

Input: Off – No input signal present.
Green – Signal present on one or more inputs.
Amber – Signal limiting/clipping on one or more inputs.

Output: Off – No output signal present.
Green – Signal present on one or more outputs.
Amber – Signal limiting/clipping on one or more outputs.
Red – One or more channel pairs are in overload/protection mode
.

Network: Off – No Ethernet network detected.
Green – Ethernet network detected.

WiFi: Off – WiFi disabled.
Green – WiFi enabled.

8.2 Automatic power sharing

The **Aio4125 and Aio8125** amplifiers feature a power distribution function that automatically allocates the total power available from the amplifier's internal power supply between each pair of output channels. If one channel temporarily requires more than the amplifier's rated continuous power whilst the other channel requires less, the excess power available from the internal power supply is automatically made available to the channel that needs it. Power sharing optimises the amplifier's ability to deliver maximum power to the dynamic loudspeakers when playing musical programmes.

8.3 Resetting to factory settings

The **Aio4125 and Aio8125** amplifiers can be reset to their default settings either via the 'Settings' tab in the web control application or using the reset button located on the bottom panel of the amplifier.

To reset the amplifier using the round button, follow these steps:

- Unplug the amplifier from the mains.
- Use a suitable tool to press and hold the reset button whilst reconnecting the mains power supply.
- Hold down the reset button for 3 seconds whilst the amplifier restarts.

The amplifier will restart with all settings reset to their default values. Any settings previously configured will be deleted.

Technical specifications

Model	Aio4125	Aio8125
Total system power	500 W	1000 W
Output power at 4/8 Ω	4 x 125 W	8 x 125 W
Output power at 70/100 V*	2 x 250 W	4 x 250 W
When using the 70V Hi-Z mode, the line impedance must not be less than 20 ohms. When using the 100 V Hi-Z setting, the line impedance must not be less than 40 ohms.		
Audience share (up to) % across all channels**	2 x 250 W	4 x 250 W
Power consumption	150W	300 W
Dimensions	44 x 220 x 319 mm (1.7 x 8.7 x 12.6 inches)	44 x 440 x 319 mm es (1.7 x 17.3 x 12.6 inches)
Weight	2.8 kg (6.2 lb)	3.8 kg (8.4 lb)
Rated power	1% THD at 120 V AC and 230 V AC	
Output circuits	UMAC™ Class D – full-bandwidth PWM modulator with ultra-low distortion	
Output voltage	70 Vc / 140 Vcr (open-circuit) // In bridge mode: 140 Vc / 280 Vcr (open-circuit)	
Signal-to-noise ratio	>106 dB (A-weighted, 20 Hz–20 kHz, 8 Ω load)	
THD+N (typical)	< 0.05% (20 Hz–20 kHz, 8 Ω load, 3 dB below rated power)	
Frequency response	20 Hz–20 kHz (+0/-0.8 dB (8 Ω load, 3 dB below rated power))	
Protection circuits	Protection against short circuits, direct current, undervoltage, excessive temperatures and overloads	
Power supply	UREC™ universal switching power supply with power factor correction (PFC) and standby converter	
Operating temperature	0-40°C	
Operating voltage/ frequency	Universal power supply, 100 V–240 V, 50 Hz–60 Hz	
Standby power consumption	< 0.6W	
Accessories	2 mounting brackets 1 x ½-rack extension - AioR1 2 half-rack mounting plates - AioR1 2 rear brackets - AioR2	2 mounting brackets (fitted) 2 rear brackets - AioR2

*The 100 V mains mode corresponds to -1 dB (≈ 90 V)
**The Aio4125 can only use the Powershare function between channels 1-2 and 3-4
The Aio8125 can only use the Powershare function between channels 1-2, 3-4, 5-6 and 7-8

Technical specifications

Energy efficiency data

The following table shows the efficiency and power performance of the amplifiers **:** Aio4125 **and Aio8125.**
It also shows the calculated thermal losses.

1/8th of the maximum power						
Model	**Load (Ohms)**	**Power In (W)**	**Power Out (W)**	**Efficiency (%)**	**Thermal Loss (W)**	**Thermal Loss (BTU)**
Aio4125	4	107	62.5	58.6	44.5	152
Aio8125	4	200	125	62.5	75	256

Standby and idle mode					
Model	**On standby (mW)**	**Standby power consumption at 120 V s (W)**	**Standby power consumption at 120 V: (BTU)**	**Standby power consumption at 230 V: (W)**	**Standby power consumption at 230 V (BTU)**
Aio4125	<500*	14.5	49	15.9	54
Aio8125	<500*	27.7	94	30.2	103

*In accordance with the ErP Directive

Data on the propagation delay

The following tables describe the input/output latency performance of the **Aio4125 and Aio8125** .

Aio4125			
		OUT	
		Analogue	S/PDIF
IN	Analogue	1,177 µs	458 µs
	S/PDIF	1,833 µs	1,104 µs

Aio8125			
		OUT	
		Analogue	S/PDIF
IN	Analogue	1,307 µs	600 µs
	S/PDIF	1955 µs	1,250 µs