SYNTHEA SERIES CONTROL WEB App

v.1.0

Unlock the full potential of your Synthea amplifier with a seamless setup process! Before diving into input, output, and GPIO connections, ensure a solid foundation with the right initial configuration. The key to optimal performance lies in appropriately configuring the amplifier output format to match your connected speakers.

Let's kickstart the configuration process by establishing vital connections – mains power and network services. Follow the simple steps outlined in the sections below to get your Synthea amplifier up and running smoothly.

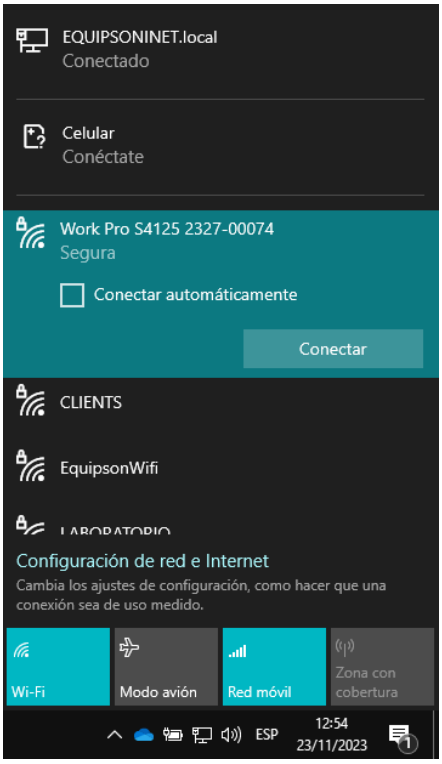
1. Mains Power Connection
Power up your Synthea amplifier effortlessly with our power factor corrected power supply. Compatible with mains input voltage ranging from 100V AC to 240V AC, 50/60Hz, simply connect the provided mains cable to a switched mains supply. For Synthea amplifiers, there's no need for a power switch – they're operational as soon as mains power is connected.

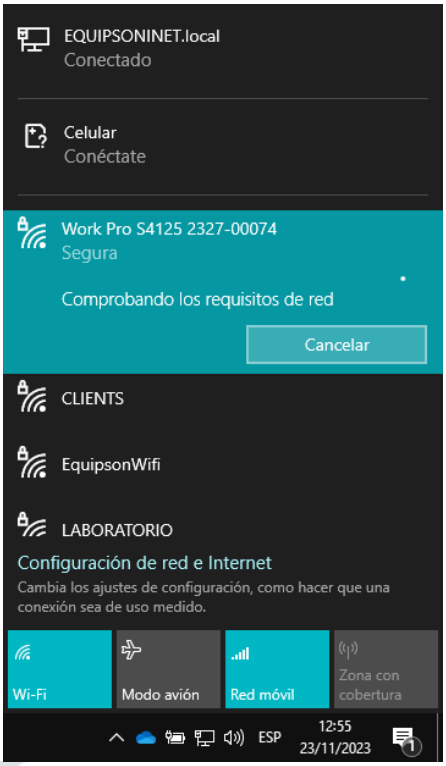
2. Wired (Ethernet) Network Connection
For a reliable wired connection, use an Ethernet cable to link the Synthea amplifier to your network router, switch, or directly to a computer. Once connected to mains power, wait for the front panel Network indicator to glow green, signaling successful network connectivity. Access the Synthea Control Web App interface with any web browser at http://192.168.64.100 to configure your amplifier according to your preferences.

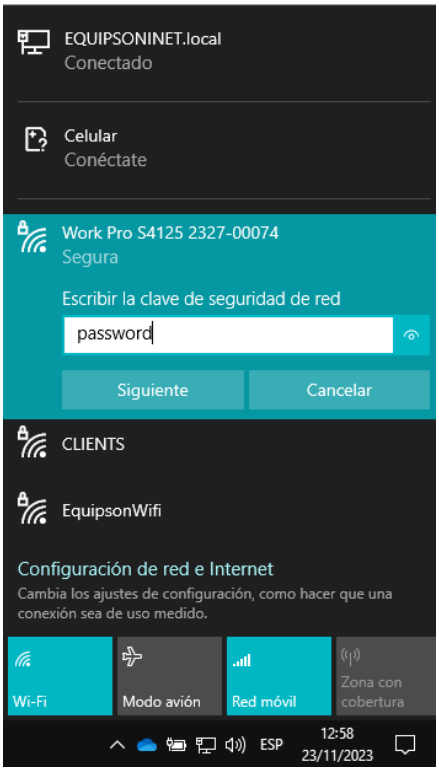
3. Wireless (WiFi) Network Connection
Experience the freedom of wireless connectivity by following these steps:
Power up your Synthea amplifier and wait for the front panel WiFi indicator to illuminate green.
Connect your smartphone, tablet or computer to 'Work Pro S4125 2327-00074' (brand, model and serial number of amplifier) using the password 'password'.
Open a web browser and enter the IP address: 192.168.4.1 to access the Synthea Control Web App interface for convenient configuration.
Navigate to the Settings Tab, select WiFi > WiFi Mode > Client, and input the required WiFi network name and password.

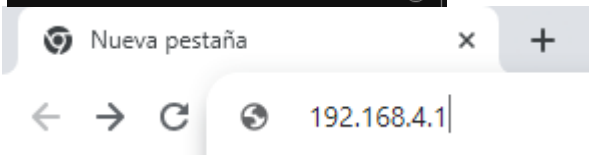
Pro Tip: After your initial wireless connection, enhance security by changing the Synthea amplifier Access Point WiFi password.

Whether wired or wireless, configuring your Synthea amplifier has never been this straightforward.





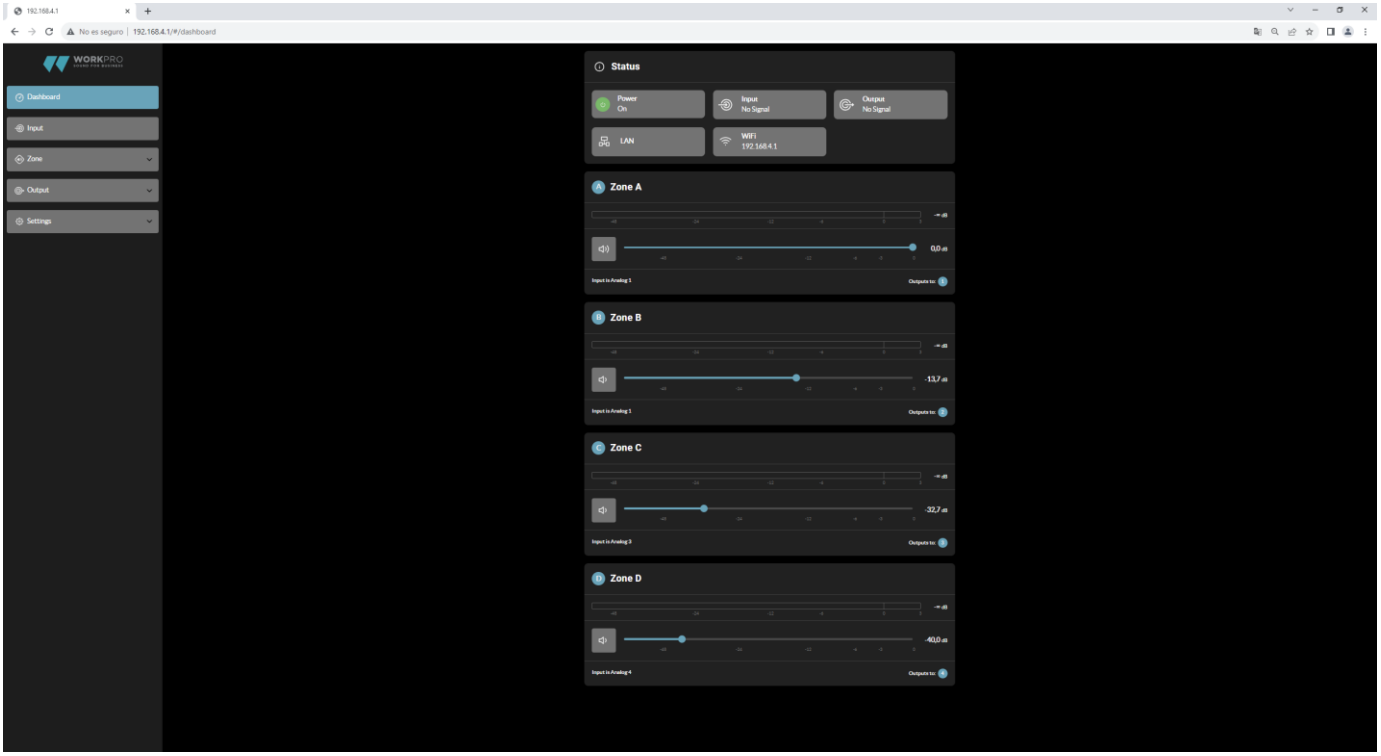




I.P.: 192.168.4.1

Pass: password

MAIN MENU



Step into the Dashboard and enjoy in a detailed snapshot, highlighting the amplifier's real-time status, output zones, and a configuration menu designed for simplicity with intuitive tabs. This Dashboard isn't merely an information hub – it transforms into your control hub, granting quick entry to fine-tune zone volumes for an instant audio tuning sensation.

Effortlessly glide through the various configuration menu tabs, each holding a wealth of features. Take a deeper plunge into the amplifier's capabilities, unveiling many of customization options.

Join us in exploring of each menu tab, ensuring you unlock the full potential of your Synthea amplifier.

INPUT TAB

Come into the configuration with the Input Tab, where a wealth of configuration parameters awaits for each amplifier input channel.

• Input name

• Mono/Stereo selection

• Input sensitivity

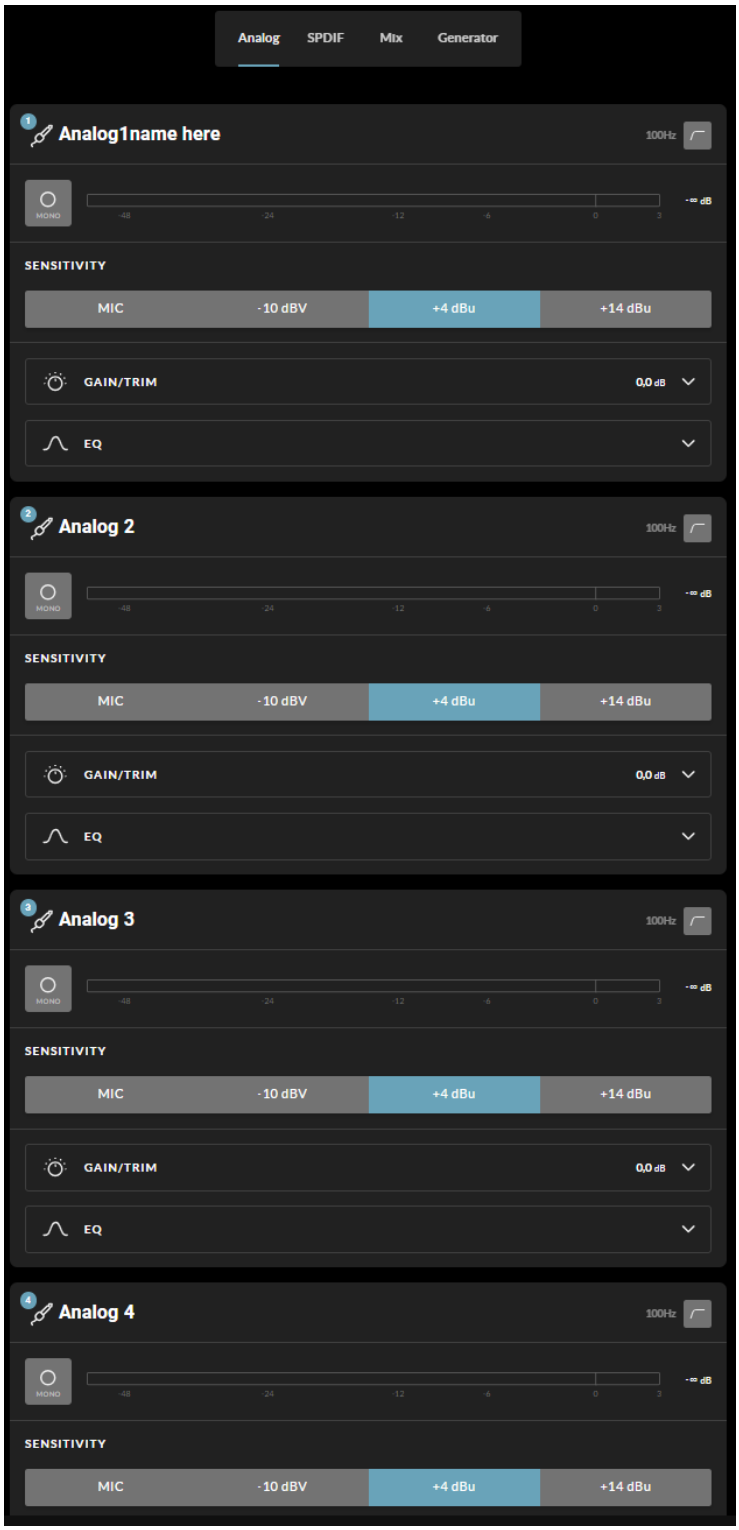
• High-pass filter

• Gain trim

• Five band equalization

the Input Tab allowing you to mix and route input signals to specific amplifier zones. With the mix function, any amplifier input, whether it's a stereo or split mono S/PDIF input, can be mixed with other inputs, creating multiple predefined mixes.

Keep that the number of individual mixes shows the quantity of amplifier analogue inputs. Additionally, note that mix inputs start off muted by default, with their level adjustment sliders set to zero. All mixing operations unfold after the high-pass filter, input equalization, and Mono/Stereo selection.



To edit default input names simply select and type in the Input Name field.

• Define a mono or stereo input by selecting the appropriate option. Defining a stereo input will reduce the total number of inputs available.

• Select an input sensitivity option from the drop-down menu: +14dB, +4dB, -10dB and 'microphone' options are available.

Generally, the +14dB or +4dB options are appropriate for 'professional audio' source hardware with balanced outputs, while the -10dB option is more appropriate for 'consumer audio' source hardware with unbalanced outputs.

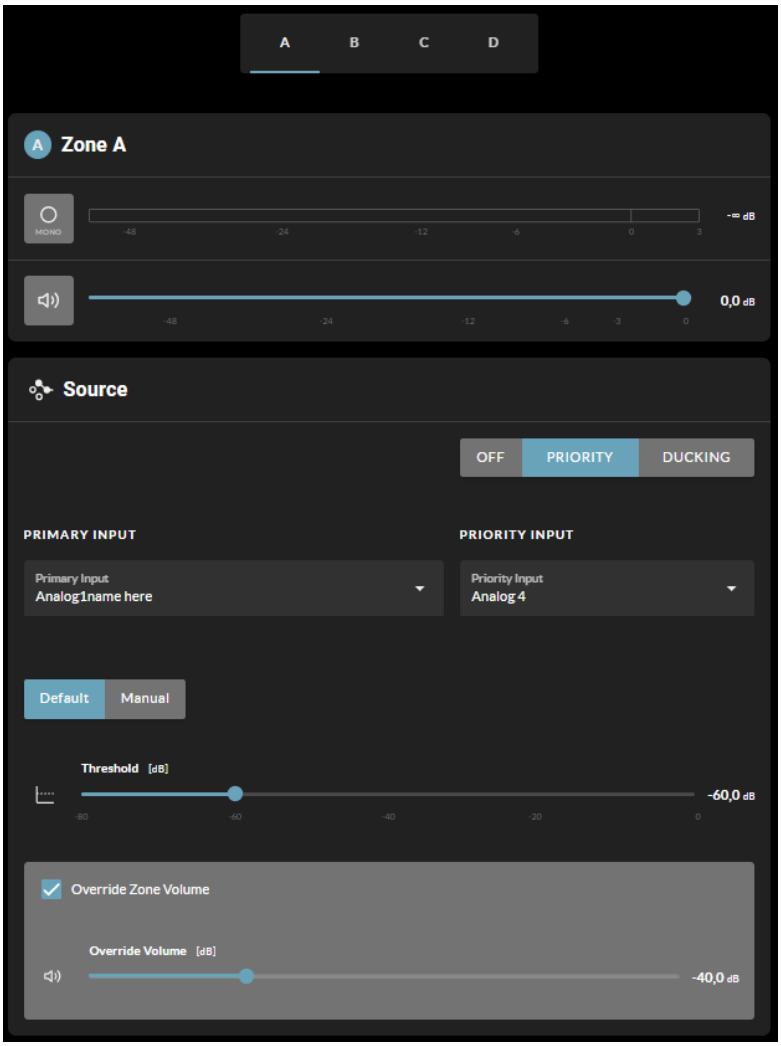
The 'microphone' option provides the significantly greater sensitivity required for microphones.

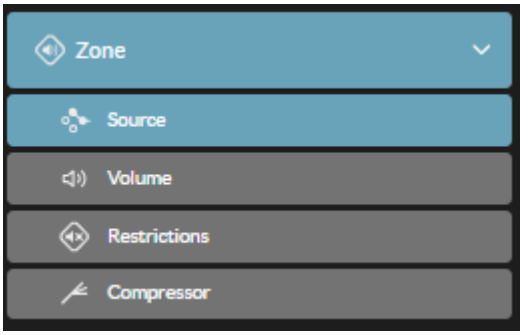
Note: Only dynamic microphones are suitable for connection.

Phantom power for condenser microphones is not provided.

A pink noise or sine wave audio signal generator, appropriate for audio system testing and set up, can also be enabled, disabled, and adjusted for gain and frequency via the Input Tab.

ZONE TAB





The Zone Tab enables installation zones to be defined and named, provides access to further sub-menus. Zones might be installation areas or different rooms. For all Zone Tab menus, the installation zone under configuration is selected by highlighting one of the zone identifiers (A, B, C or D) at the top of the display.

The Source menu enables inputs to be assigned to zones and Input Priority or Input Ducking to be configured. The Input Priority function enables an alternative input to replace and mute the input primarily routed to the zone under configuration when the alternative input exceeds a preset level.

The Input Ducking function enables an alternative input to replace and attenuate the input primarily routed to the zone under configuration when the alternative input exceeds a preset level.

Select the zone to be configured. The number of zones available and their channel format (stereo or mono) will depend on the amplifier model, input setup and output mode (Lo-Z or Hi-Z).

For example, a two output amplifier can have the following zone configurations:

• 1 x stereo Lo-Z zone

• 2 x mono Lo-Z zones

• 1 x mono Hi-Z zone

A four output amplifier can have the following zones configured:

• 2 x stereo Lo-Z zones

• 4 x mono Lo-Z zones

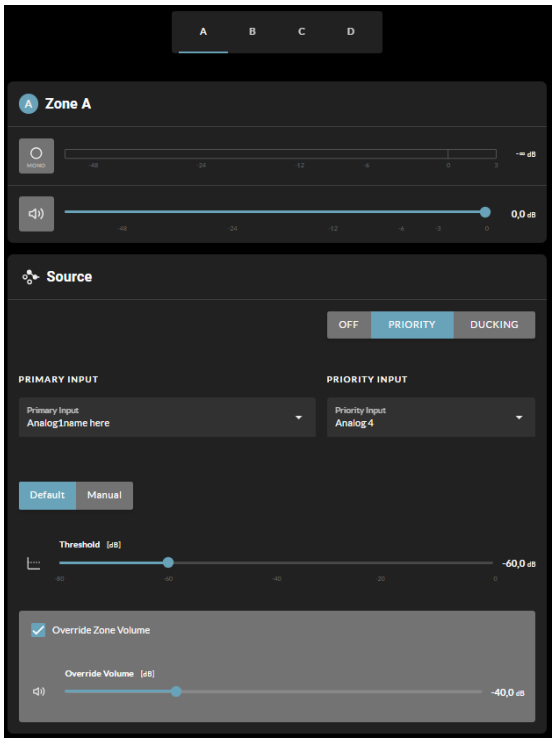
• 2 x mono Hi-Z zone

• 1 x mono Hi-Z zone + 1 x stereo Lo-Z zone

• 1 x mono Hi-Z zone + 2 x mono Lo-Z zones

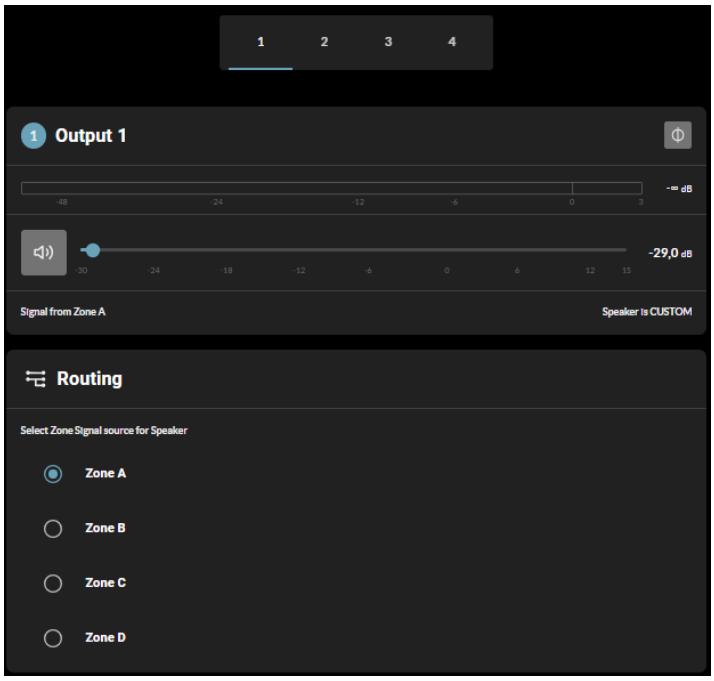
Note: When configured in Hi-Z mode Synthea amplifiers operate in 'bridged' mode where the output of two channels is combined. This means that the number of output channels available in Hi-Z mode is half that available in Lo-Z mode.

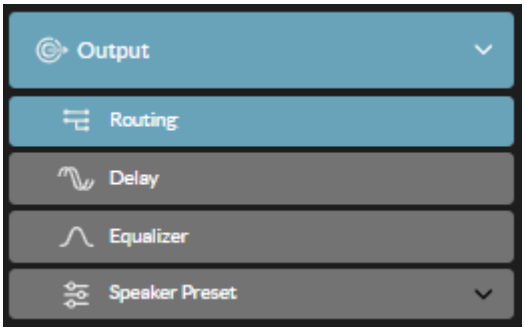
The Volume menu allows minimum and maximum zone volume limits to be set, and enables external GPIO volume control to be applied to individual zones. The GPIO configuration menu can be found under the Settings Tab, and notes on connecting an external volume control via the GPIO interface.



The Restrictions menu enables zone inputs or input mixes to be restricted from routing to particular zones. The Compressor option enables default or custom signal compression to be applied to individual zones.

INPUT TAB





The Output Tab enables amplifier outputs to be named, linked to zones, and provides access to Delay, Equalizer and Speaker Preset menus.

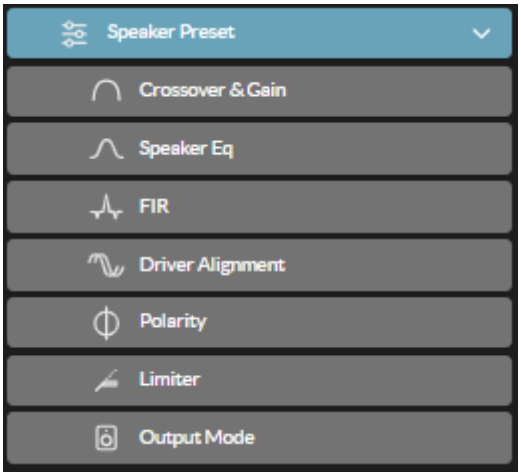
For all Output Tab menus, the amplifier output under configuration is selected by highlighting one of the output identifiers (1, 2, 3 or 4) at the top of the display.

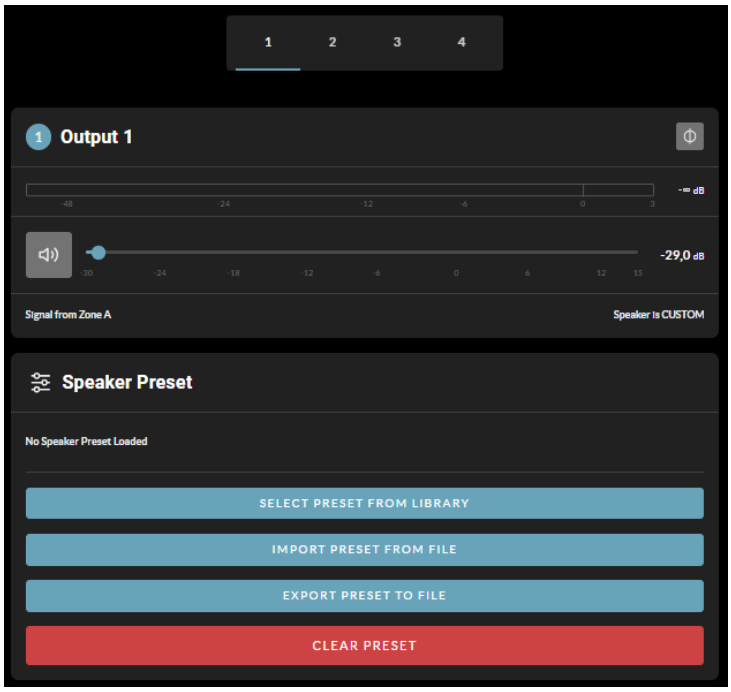
The Routing menu enables zones to be assigned to amplifier outputs.

The Delay menu enables delay to be applied to individual amplifier outputs.

The Equalizer menu enables parametric equalization to be applied to individual amplifier outputs. Equalizer settings configured for one amplifier output can be copied and applied to other outputs.

The Speaker Preset menu enables a set of speaker parameters to be adjusted, and preset configurations to be created, exported, imported or cleared.
Speaker Presets can be simply applied to the selected amplifier output or imported, chosen from a library, exported or cleared.
Speaker Preset data provided by third parties for use with specific speakers can be imported and applied to amplifier outputs. To import speaker preset parameters follow the steps described below and illustrated in the diagrams.





Speaker Preset Menu Parameters

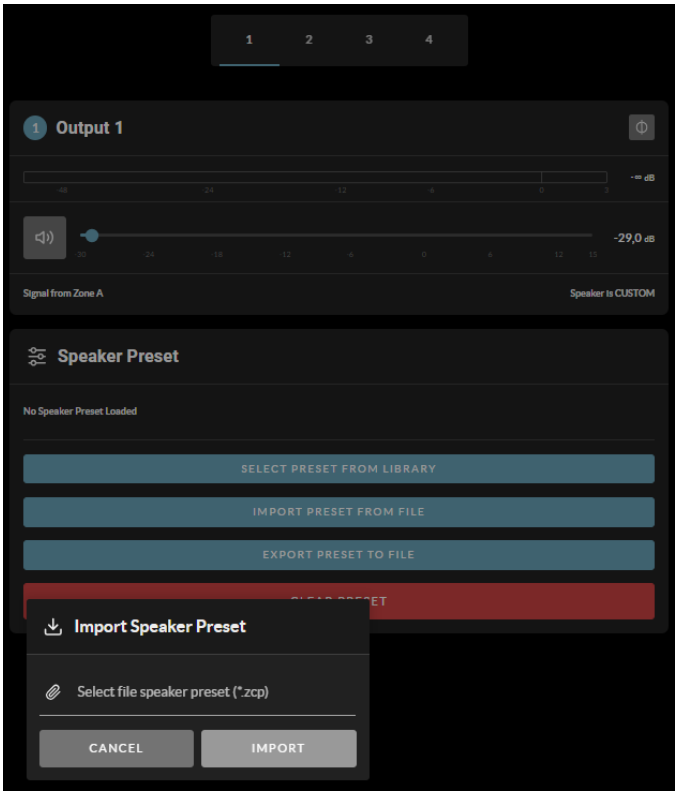
• The Crossover & Gain preset menu enables high or lowpass crossover filters and gain adjustment to be applied to individual amplifier outputs.
• The Speaker EQ preset menu enables parametric equalization to be applied to individual amplifier outputs.
• The FIR preset menu enables FIR (Finite Impulse Response) based equalization filter coefficients generated by external speaker measurement software to be imported and applied to individual amplifier outputs.

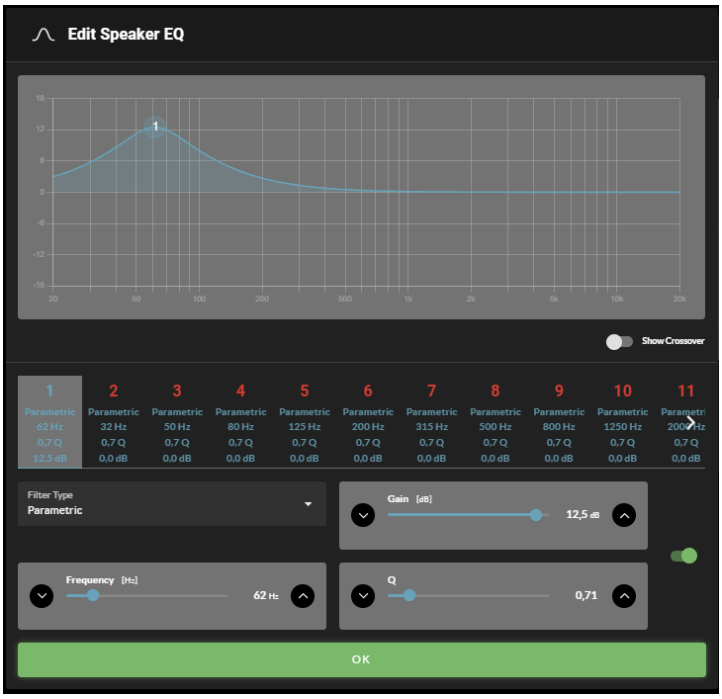
Note: FIR coefficient files in either .csv or .txt format can be imported.

• The Driver Alignment preset menu enables delay to be applied to individual amplifier outputs.
• The Polarity preset menu enables the polarity of individual amplifier outputs to be reversed.
• The Limiter preset menu enables signal limiting to be engaged or bypassed on individual amplifier outputs. Clip limiting, Peak limiting and RMS limiting can be individually or collectively engaged. The Clip limiting function offers Fast and Normal response time options. The Peak limiting function can be set to either Automatic or Manual parameter values. The RMS Limiter has default parameter values that can be adjusted but has no automatic option.

Note: It is strongly advised that if an amplifier is driving low impedance loads (<4Ω) the Clip Limiter should be engaged and set to Fast.
Note: In automatic mode, the peak limiter parameters adjust automatically in response to Crossover & Gain high-pass filter settings.

• The Output Mode preset menu enables individual amplifier outputs to be switched off or configured for Lo-Z or Hi-Z modes. In Hi-Z modes, a high-pass filter can also be configured and applied to the output. The number of outputs available will depend on the amplifier model, input setup and zone setup. For example, a two output amplifier will have two outputs available if Lo-Z mode is selected but only one output available if Hi-Z mode is selected.





Settings Tab

The Settings Tab enables miscellaneous amplifier settings to be configured and installation data to be recorded. The Settings Tab provides access to further sub-menus.

• The System Information menu provides text fields for the recording of installation data.

• The Device menu records amplifier specific information such as the model number and firmware version. A firmware update routine and identifier button can also be found under the Device menu.

• The Backup & Restore menu enables amplifier configuration data to be downloaded to an external archive and enables previously saved configuration files to be uploaded and adopted by the currently connected amplifier.

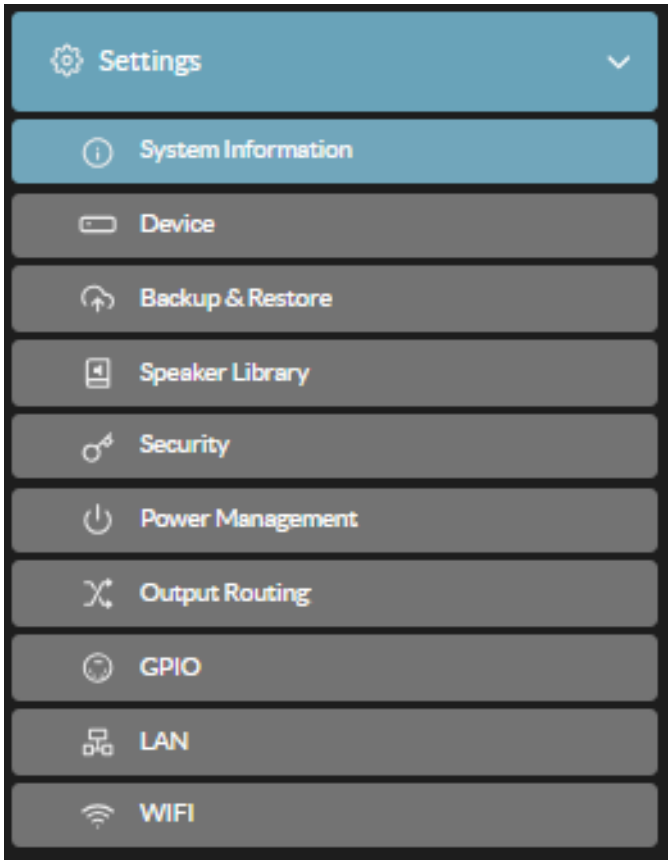
• The Speaker Library menu enables management of speaker preset libraries. Existing libraries of speaker preset files (.zcl) can be created or imported, and existing libraries edited or fully deleted.

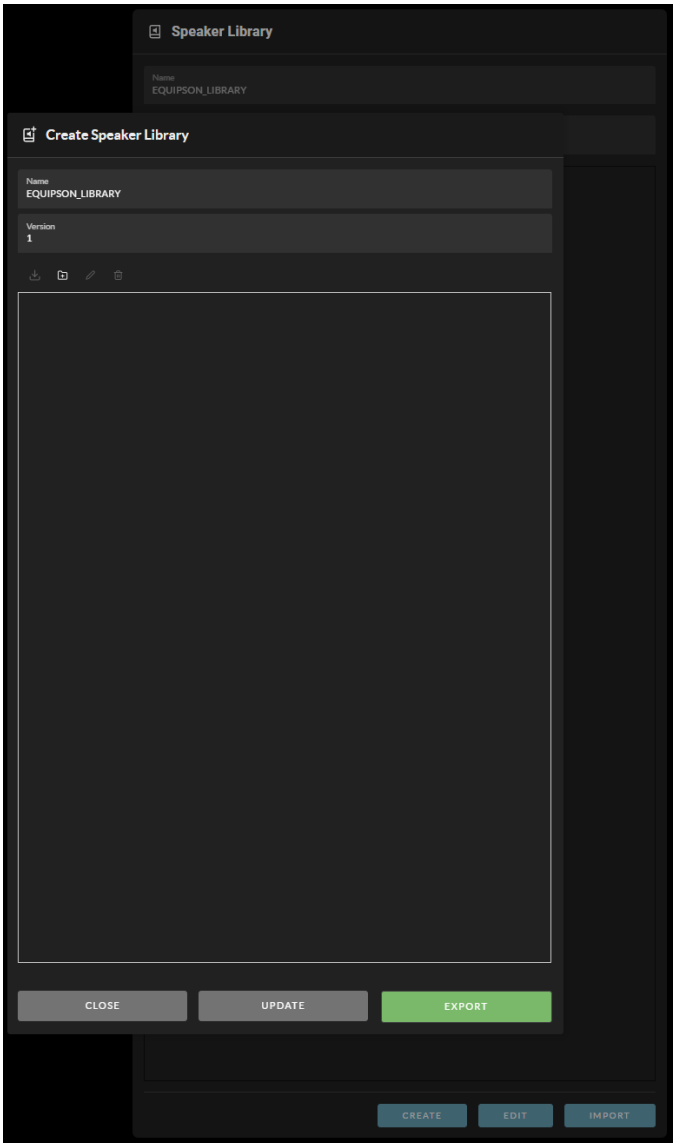
• The Security menu enables a password to be set in order to protect against unauthorised access to the amplifier Control Web App. Password protection is particularly important when an amplifier is connected to a wired network as the WiFi password is no longer required to gain access to Control Web App.

Note: It is recommended that a Control Web App password is different from that required to gain access to the amplifier via WiFi.

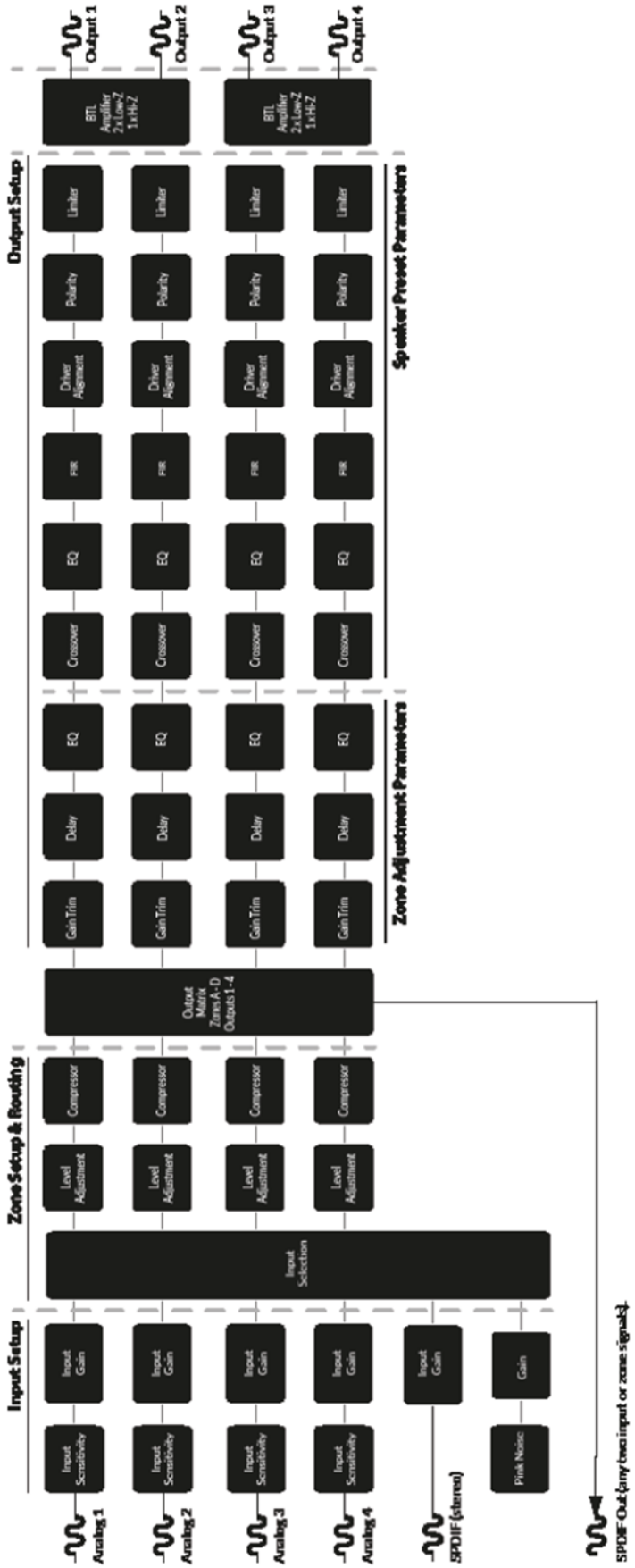
• The Power Management menu enables various automatic switch-on options to be engaged. The Power Management menu also offers timed Standby and Mute functions.

The Output Routing menu enables specified inputs or zones to be routed to the amplifier S/PDIF outputs. The output level can also be adjusted. Any zone or input can be routed to either digital output, including inputs not actively assigned to a zone. Primary or priority input status is immaterial. The specified input is always routed to the specified output to be available for use by downstream devices.


Settings
System Information
Device
Backup & Restore
Speaker Library
Security
Power Management
Output Routing
GPIO
LAN
WIFI


Speaker Library
Name
EQUIPSON_LIBRARY
Create Speaker Library
Name
EQUIPSON_LIBRARY
Version
1
CLOSE
UPDATE
EXPORT
CREATE
EDIT
IMPORT

DIAGRAM



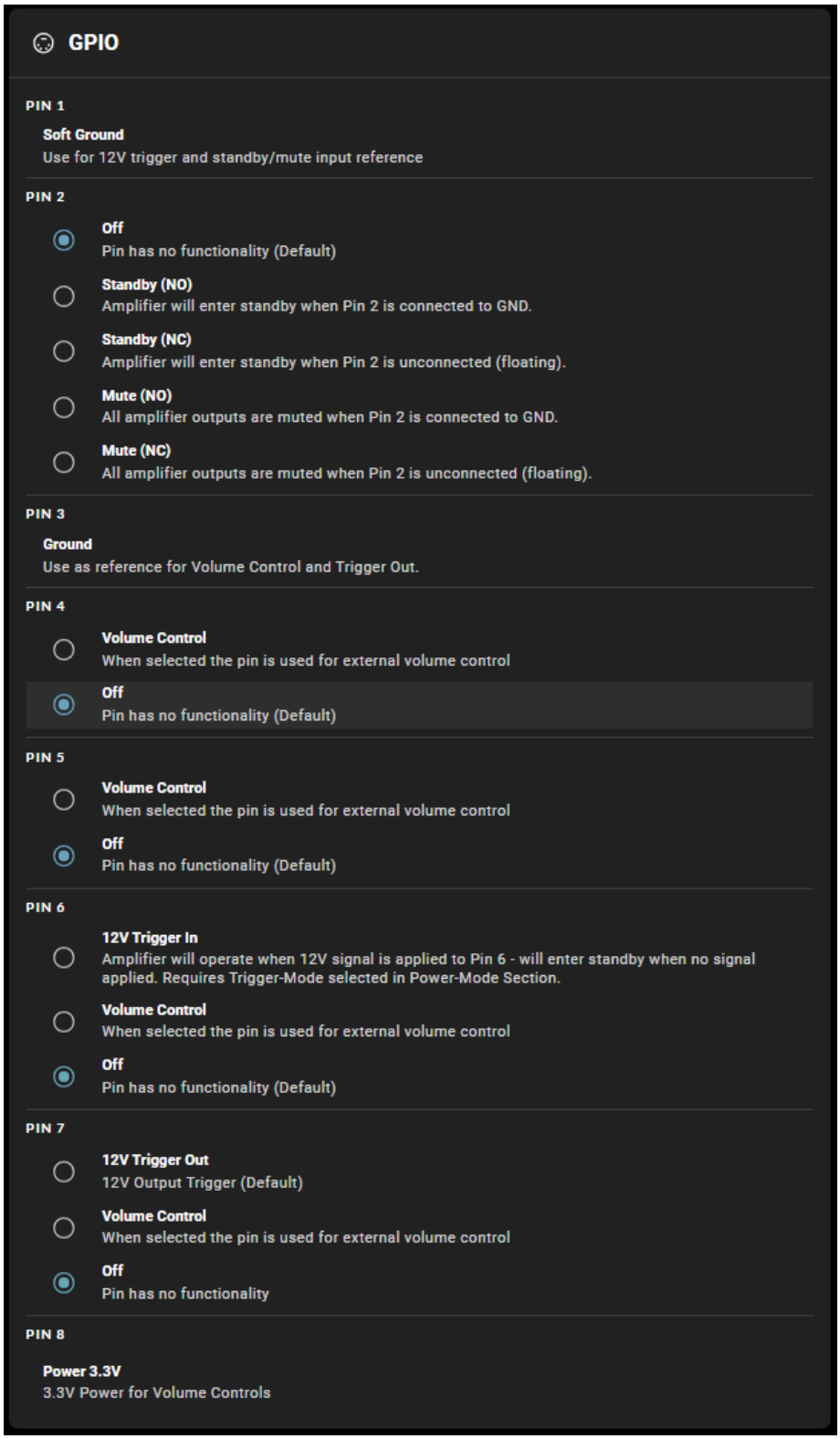
Setup and Signal Routing

Thanks to their network based configuration features, Synthea amplifiers offer considerable versatility in terms of sources, signal routing, installation zones and output modes. Inputs can be freely assigned to installation zones, and those zones assigned freely to the available amplifier outputs in either Lo-Z or Hi-Z modes.

This versatility enables, for example, one amplifier simultaneously to drive both Lo-Z and Hi-Z speakers, or for different inputs to be routed to different output zones.

The following paragraphs describe and illustrate the recommended procedure for configuring input, zone and output routing.

Synthea amplifiers provide a GPIO socket that enables remote control of volume, standby, mute and trigger functions. The GPIO connector pin functions are described in the GPIO Settings.



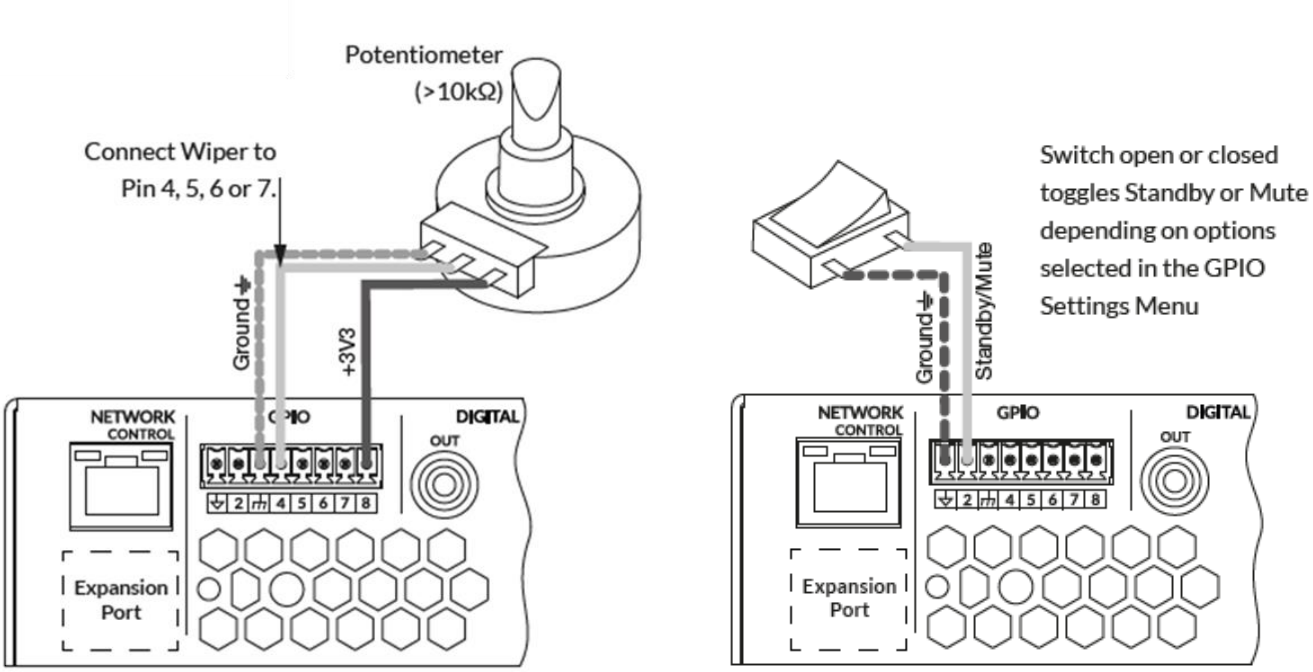
Note: The GPIO connector must not be used for any unintended purpose. Amplifier damage may result from incorrect use of GPIO.

Note: Shielded cable must be used when connecting standby switches and potentiometers via GPIO.

Note: GPIO Pin 8 has a low output impedance and is able to supply a maximum current of 10mA.

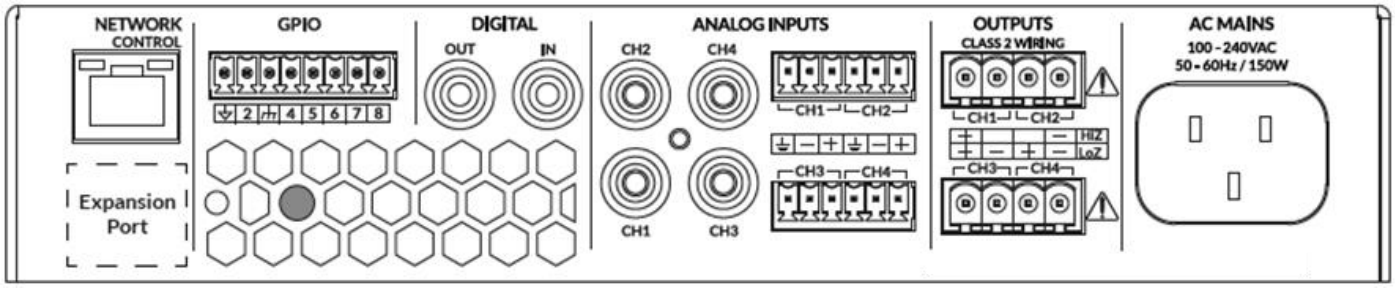
Note: GPIO Pin 1 and Pin 3 both offer
ground connections:

Pin 1 is connected directly to the amplifier chassis.
Pin 3 is connected to the chassis via a 220 Ohm resistor.
The 'soft ground' connection of Pin 3 is potentially useful for managing ground loops that may cause audible hum.



CONNECTIONS

Synthea rear panel connections.



Synthea amplifiers incorporate a power factor corrected universal power supply and can be used with mains input voltage from 100V AC to 240V AC, 50/60Hz. Use the mains cable supplied with the amplifier.

Synthea amplifiers have no mains power switch and are operational as soon as mains power is connected. Ensure that all signal, GPIO and output connections are made before connecting the amplifier to mains power.

Synthea amplifier provide four balanced or unbalanced analog audio inputs and 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 network interface.

Analog Inputs

Synthea analog inputs are of line level format with a default input sensitivity of +4dBu (full output voltage swing/sensitivity) in all output modes. Input signal levels up to +24dBu can be handled without input clipping. Input sensitivity options can be set via the amplifier network interface.

Balanced input connections to the amplifiers are made via male 'Euro Block' connectors. Connecting cables to the supplied female input connectors.

Unbalanced input connections to the amplifiers are made via RCA phono sockets connected in parallel with the balanced inputs.

Note: Two output amplifier model connection sockets differ only in the deletion of channel 3 and channel 4 output connectors.

Digital Outputs

Synthea S/PDIF stereo digital audio output connections are made via a single RCA Phono socket. The S/PDIF output signal can be routed from any input or zone and is intended to be used for daisy-chaining Synthea Connect amplifiers.

Note: See the Output Routing paragraphs for more information on Digital Output configuration.

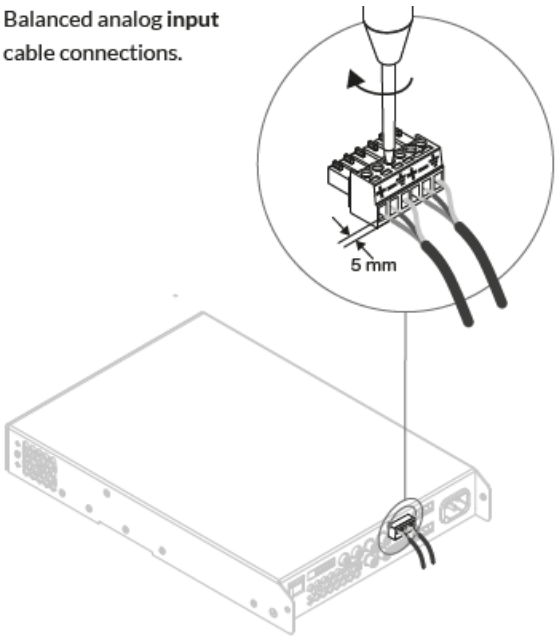
Note: 75Ω RCA Phono cables specifically intended for digital audio should always be used for S/PDIF connections. Standard Phono cables can be used but may not result in optimal performance.

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

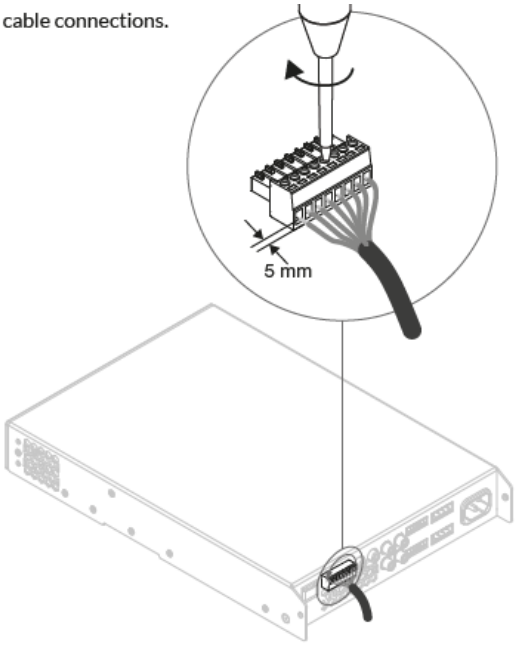
ANALOGUE OUTPUTS LOUDSPEAKERS

The output connections from the amplifiers to the loudspeakers are made via male 'Euro Block' connectors. Connect the cables to the supplied female input connectors depending on the type of installation speakers required.

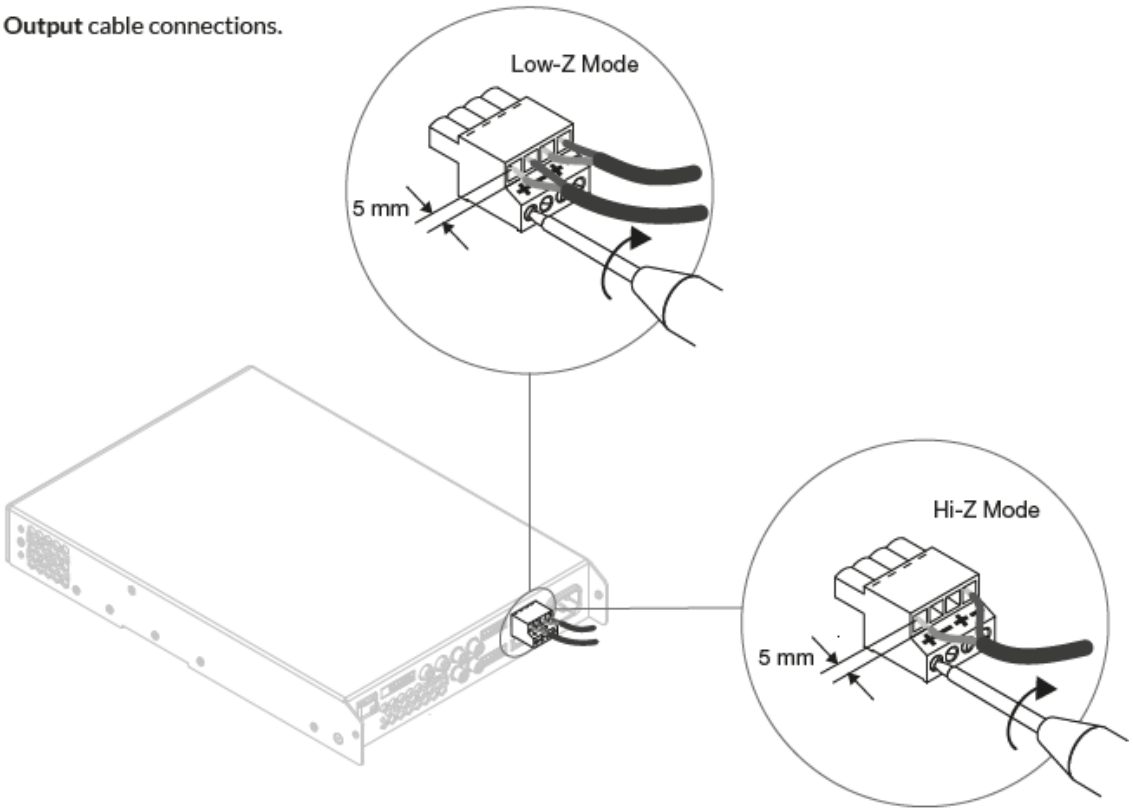
Balanced analog **input** cable connections.



GPIO cable connections.



Output cable connections.



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