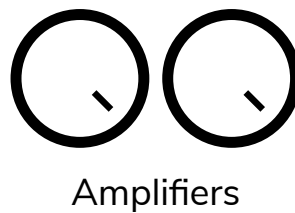




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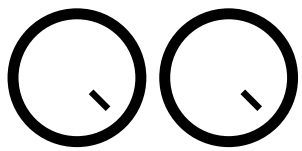
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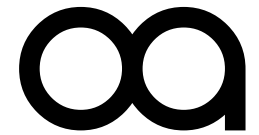




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Optimal Audio

Congratulations on your choice of Optimal Audio for your latest sound system installation.

The Optimal Audio range of compatible audio zoners, controller, amplifiers and loudspeakers are designed to work together simply and effectively. Our quick start guides will take you through connectivity and set up in a straightforward style that reflects the Optimal Audio brand.



Important Information

Prior to installation of SmartAmp, please check for latest **firmware update**.

<https://optimal-audio.co.uk/support/software>

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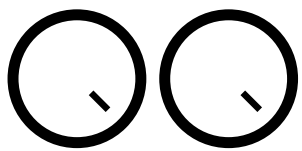
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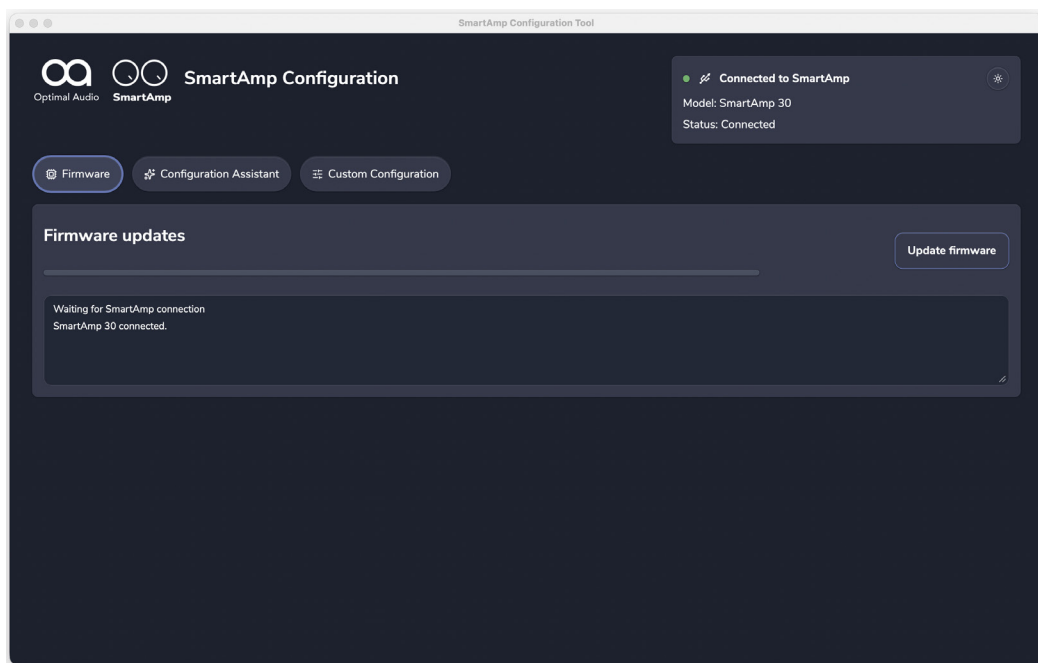
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Optimal Audio

SmartAmp Configuration v3.0 Installation and firmware update



Installation of the SmartAmp Configuration tool

Download the SmartAmp Configuration installer from optimal-audio.co.uk/support/software. Installers are available for both macOS and Windows.

Run the installer and follow the prompts to completion. The application and the latest firmware files are installed together — there is no need to source firmware separately.

Updating the firmware

1. Launch SmartAmp Configuration. The application opens on the Firmware tab and begins searching for a connected amplifier. The connection status panel top-right shows Offline until an amp is found.
2. Attach the SmartAmp to your computer using a USB micro lead in the maintenance port on the rear of the amplifier.
3. The tool automatically detects the connected amplifier and identifies the model. The status panel updates to Connected to SmartAmp with the model name and current status (Standby or On).
4. Click **Update firmware**. The correct firmware package for the connected amplifier is applied automatically. Progress is shown in the message window and progress bar.
5. The amplifier reboots automatically when the update is complete and reconnects to the tool.

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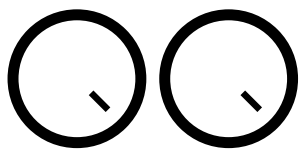
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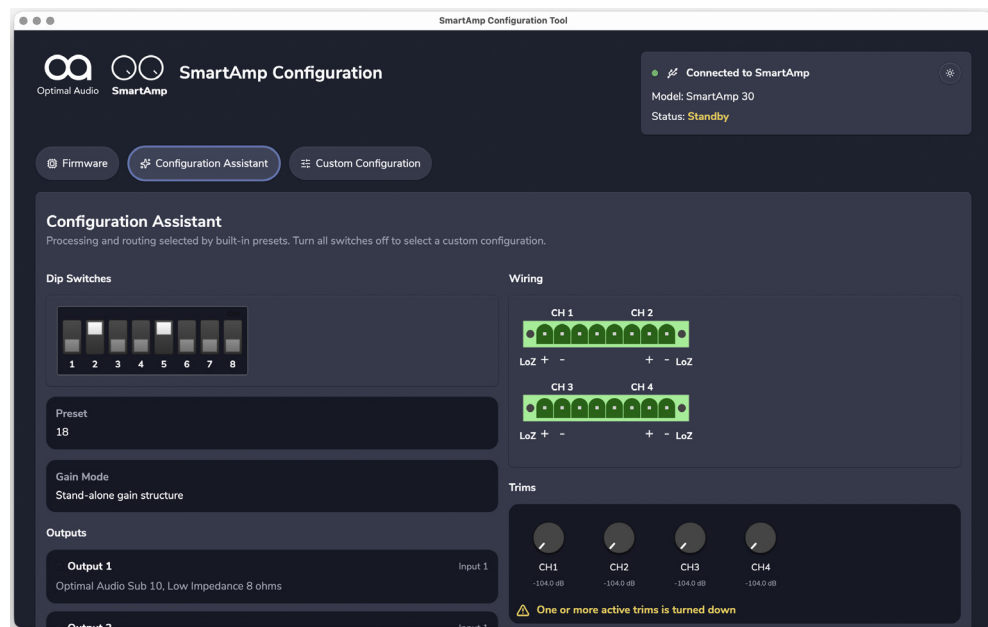
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Configuration Assistant

The Configuration Assistant tab gives you a live read-out of the amplifier's current DIP-switch configuration, showing channel routing, signal-present indicators, connector wiring and trim positions for the active preset.

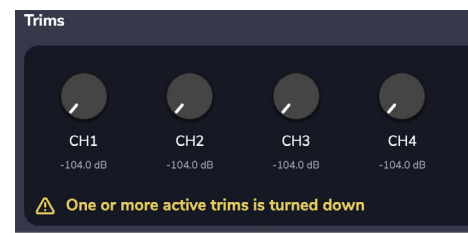
Choose the desired preset in reference to the table in this user guide. Set the DIP switches on the rear of the amplifier, and the Configuration Assistant will reflect the change in real time.

The current DIP-switch settings are shown by the assistant and explained in the text below for each output.



Where a preset is selected that mixes subs and full-range speaker types, a crossover is activated and the inputs linked as shown. When trims are active, these are shown with their live setting.

Where a preset relies on trims being set and one or more are turned down, resulting in no audio output on that channel, a warning is issued.



The rear panel speaker wiring is shown, indicating low impedance and high impedance connections where appropriate for the selected preset.

Looking for more flexibility?

If the 30 DIP-switch presets don't fit your installation, set all DIP switches to OFF (0) and switch to the Custom Configuration tab. This unlocks full per-output control of routing, speaker preset, impedance, EQ, crossover, limiter and delay. See the next section.

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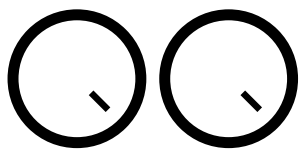
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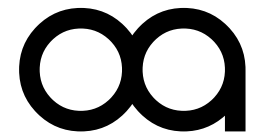
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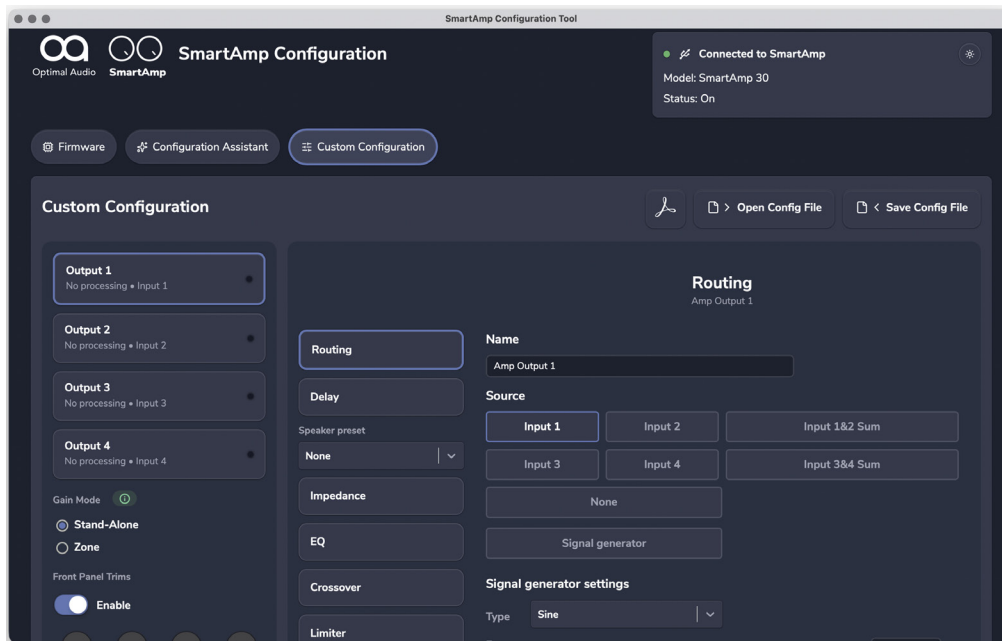
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Optimal Audio

Custom Configuration



The Custom Configuration tab unlocks the full DSP power of your SmartAmp. Every output channel can be independently configured with its own input source, speaker preset, output impedance, EQ, crossover, limiter and delay.

To enable Custom Configuration, set all rear-panel DIP switches to OFF (0). If any DIP-switch preset is active, a banner at the top of the tab will read “Preset X is active. The preset overrides the custom settings until the DIP preset is set to 0.” You can still build and save a configuration while a DIP preset is active, but it will only take effect once the DIP switches are cleared.

Layout of the Custom Configuration tab

Output selector (left) — tabs for each amplifier output (Output 1, 2, 3, 4 on SmartAmp 20 and 30; Output 1 and 2 on SmartAmp 10). Select an output to edit its settings. A signal-present indicator on each tab confirms audio is reaching that output.

Processing chain (centre) — sub-pages for Routing, Speaker preset, Impedance, EQ, Crossover and Limiter. The active sub-page is shown on the right.

Global controls (lower left) — Gain Mode (Stand-Alone or Zone) and Front Panel Trims (enable/disable). These apply to the whole amplifier, not per output.

File controls (top right) — Load Config and Save Config buttons for storing and recalling configuration files on the host computer.

Programming (bottom left) — Read From SmartAmp pulls the current configuration from a connected amplifier. Program Custom Config sends your settings to the amplifier. Changes are not active on the amp until Program Custom Config is pressed. This button will highlight to show that changes need to be sent to the amplifier and a modified indicator and parameter list appears next to the title.

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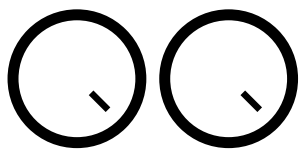
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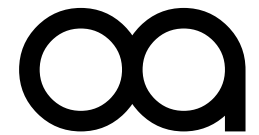




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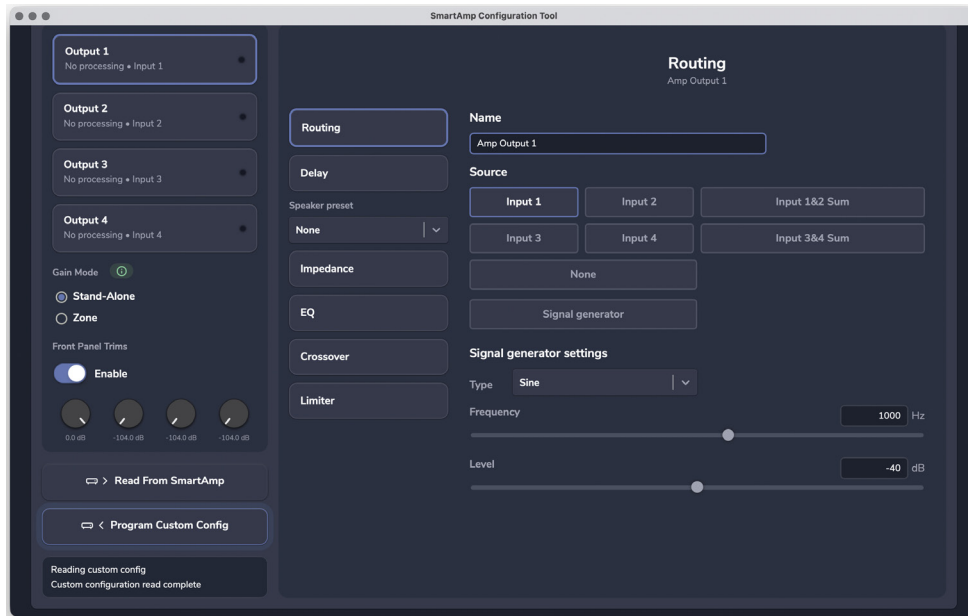
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Input routing



Select an output, then click the Routing sub-page.

Name: Give the output a name for easy navigation, future service visits and troubleshooting. Select your source for the output:

Input 1, Input 2, Input 3 or Input 4 — route directly from any physical input.

Input 1+2 Sum — a mono mix of inputs 1 and 2.

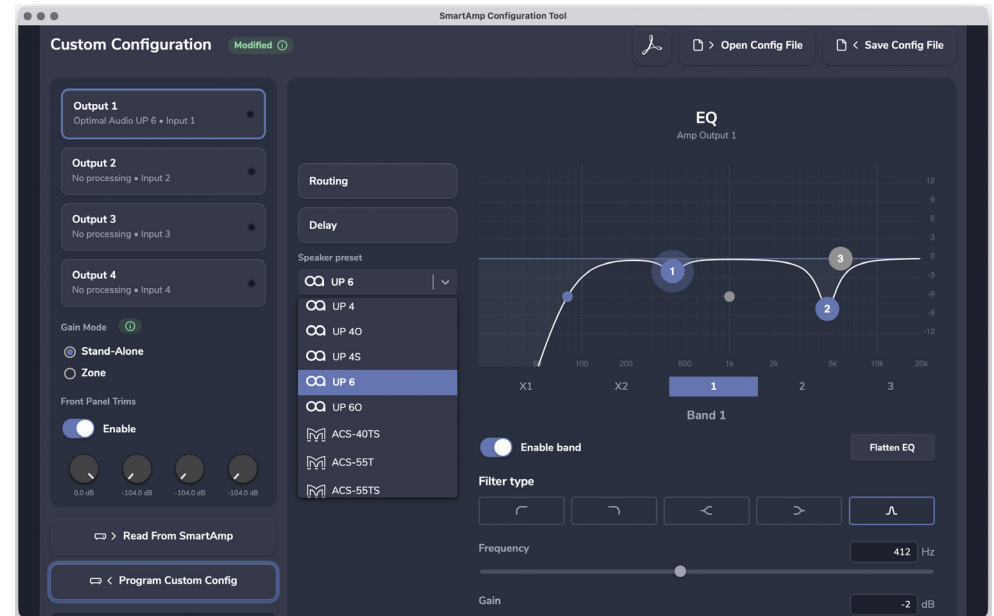
Input 3+4 Sum — a mono mix of inputs 3 and 4.

None — mutes the output.

Signal Generator — Toggle ON/OFF, route a tone or white noise to the output.

*On SmartAmp 10, inputs 3, 4 and the 3+4 Sum options are not available.

Speaker preset



Select an output, then click the Speaker preset drop-down. The library includes presets for Optimal Audio and Martin Audio loudspeakers supported by your SmartAmp model.

Selecting a preset recalls the EQ, crossover, limiter and impedance settings appropriate for that loudspeaker. These settings can then be manually adjusted to suit the installation — the speaker preset is a starting point, not a lock.

If you are using a third-party loudspeaker, leave the speaker preset on None (no processing) and build your own EQ, crossover and limiter chain in the relevant sub-pages. Save the resulting configuration to a file so you can recall it for similar installations.

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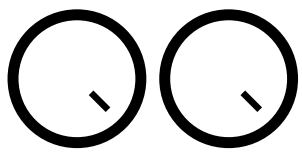
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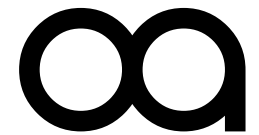




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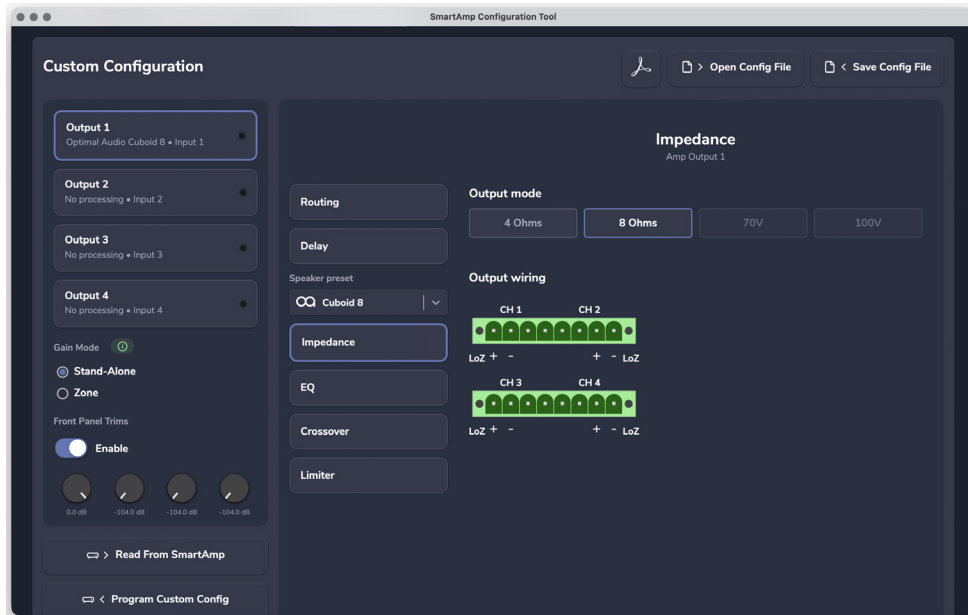
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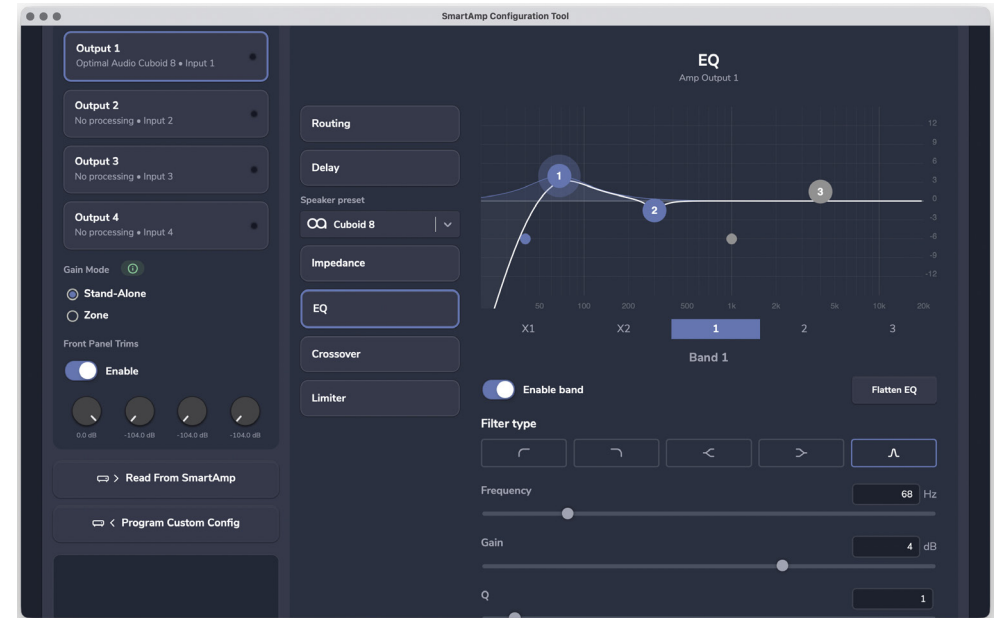
Impedance



Each output has its own impedance mode. Click the Impedance sub-page and choose 4Ω, 8Ω, 70V or 100V. Use the 4Ω setting for loads below 8Ω, and use the 8Ω setting for 8Ω to 16Ω. In high impedance mode (70V or 100V), a 70Hz high pass filter becomes active.

Be aware that the Hi-Z output pins can deliver voltages up to 100 volts. Always make speaker connections with the amplifier turned off, and confirm the wiring matches the impedance mode set in software.

EQ



Each output has a 3-band parametric EQ. Click the EQ sub-page to view the response curve and adjust each band.

Select a band (1, 2 or 3) at the bottom of the graph, then choose a filter type:

- Low shelf, High shelf
- Low cut (HPF), High cut (LPF)
- Bell (parametric)

Set Frequency, Gain and Q either by dragging the nodes on the graph or by entering values directly in the fields below. Use Enable band to bypass an individual band, or Flatten EQ to reset all three bands.

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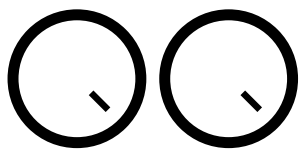
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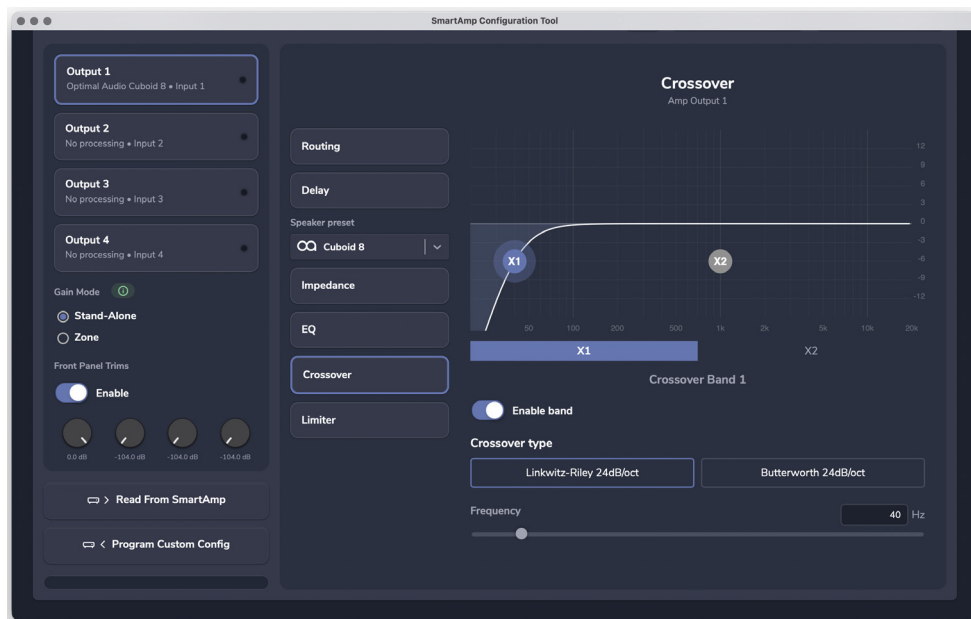
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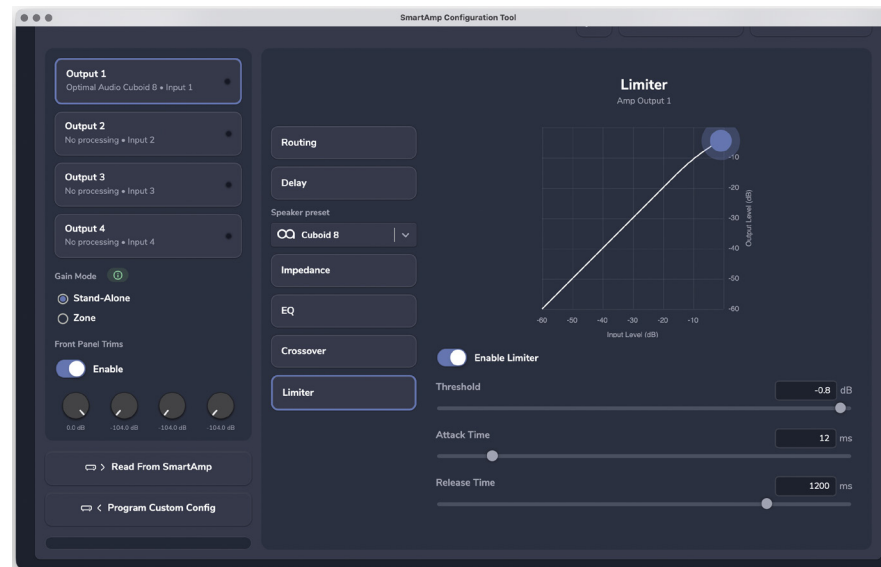
Crossover



Each output has a two-point crossover (X1 and X2), allowing high-pass, low-pass or band-pass operation. Click the Crossover sub-page and select a band:

- **X1** — the lower crossover point (high-pass filter).
- **X2** — the upper crossover point (low-pass filter).

Limiter



Each output has a peak limiter with adjustable threshold, attack and release. Click the Limiter sub-page to view the transfer curve and set the parameters.

- **Threshold** — the output level above which the limiter engages, in dB.
- **Attack Time** — how quickly the limiter responds when the threshold is exceeded, in ms.
- **Release Time** — how quickly the limiter releases once the signal drops below the threshold, in ms.

Use Enable Limiter to switch the limiter on or off for the selected output. When a speaker preset is loaded, the limiter is configured automatically with appropriate values for that loudspeaker; manual adjustment is only recommended for third-party loudspeakers or specific installation requirements.

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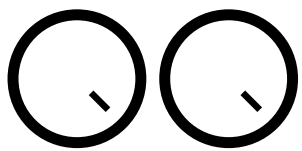
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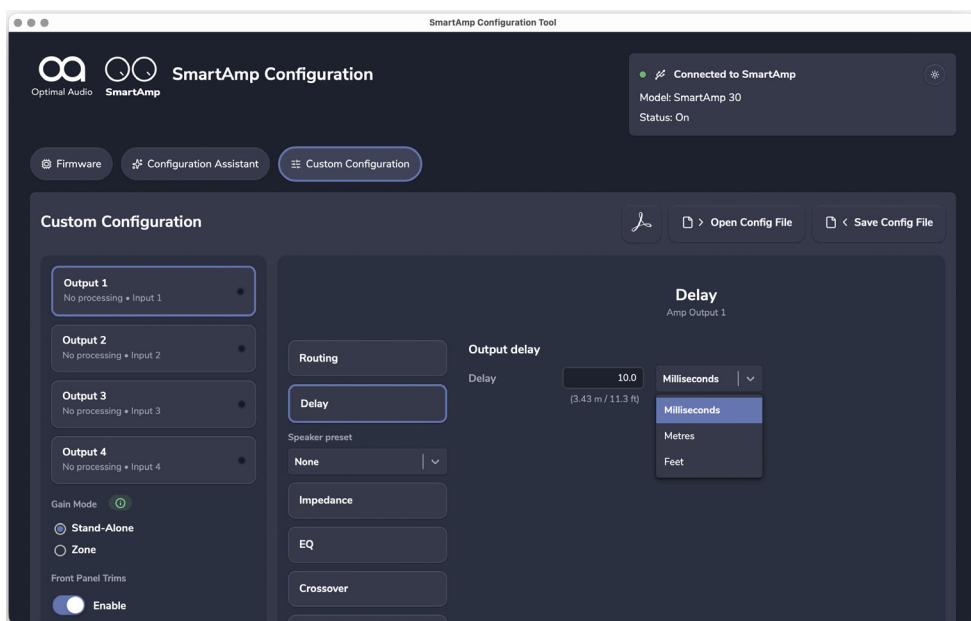
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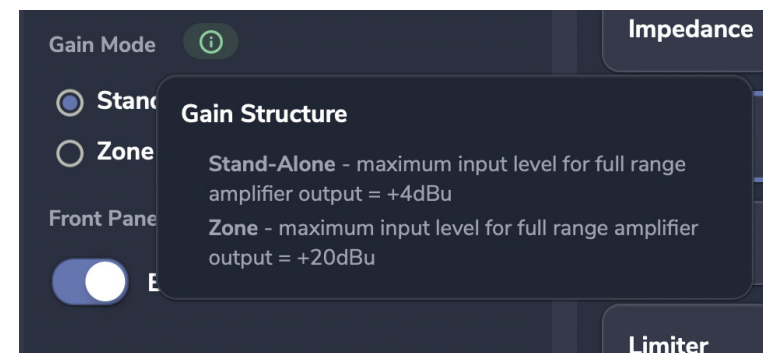
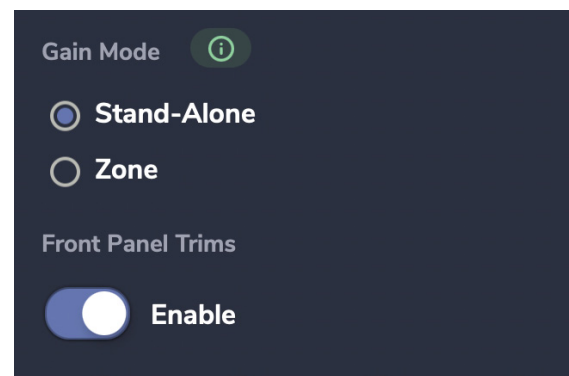
Delay

Each output supports up to 60 ms of delay, for time-aligning sub and satellite combinations or distributed-speaker installations. Set the delay in milliseconds; an equivalent distance in metres and feet is shown for reference.



Global controls

- **Gain Mode** — select Stand-Alone for +4dBu input sensitivity or Zone for +20dBu input sensitivity when using the amplifier with an Optimal Audio Zone processor. This is the software equivalent of DIP switch 8.
- **Front Panel Trims** — enable or disable the front-panel level controls. Disable to prevent end-user tampering once an installation is commissioned.



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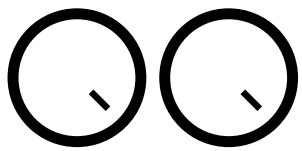
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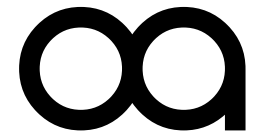




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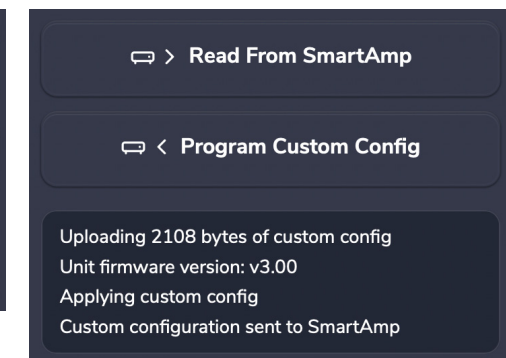
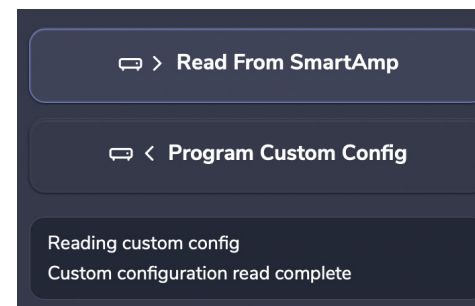
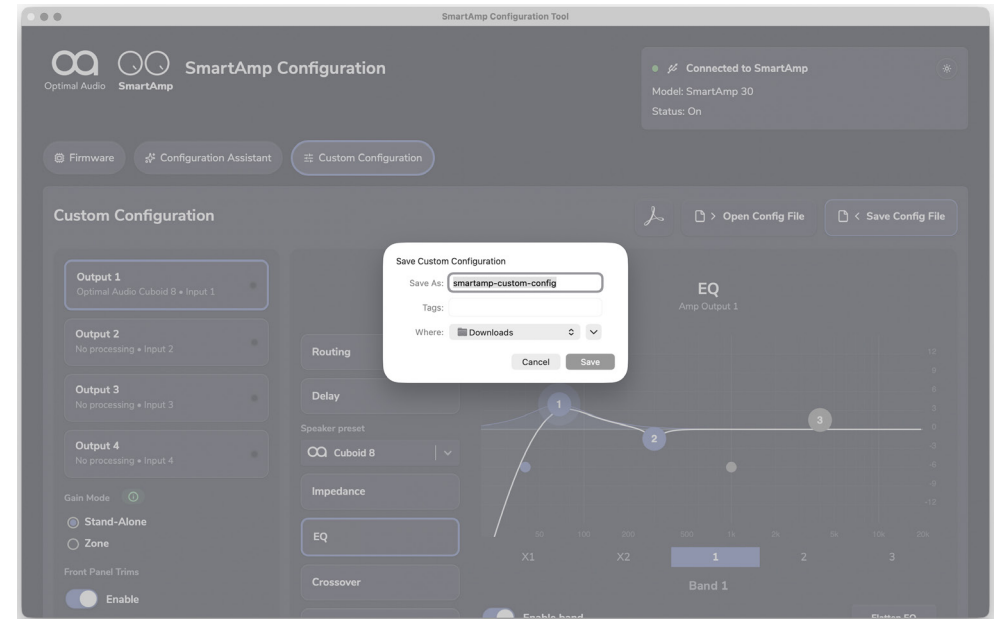
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Optimal Audio

Saving, loading and programming

- **Save Config** — saves the full amplifier configuration to a file on your computer. Use this to back up commissioned settings, or to deploy identical configurations across multiple amps.
- **Load Config** — loads a previously saved configuration file into the tool. The configuration is not active on the amplifier until you click Program Custom Config.
- **Read From SmartAmp** — reads the current configuration from the connected amplifier into the tool. Use this for service visits, troubleshooting, or documenting an existing installation.
- **Program Custom Config** — sends the current settings in the tool to the connected amplifier. Changes are not active on the amp until this button is pressed.
- **Export Config Report** — Click the Adobe Acrobat icon  to save a PDF report of the SmartAmps configuration.



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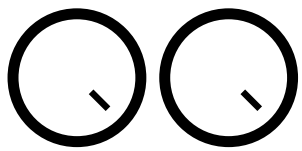
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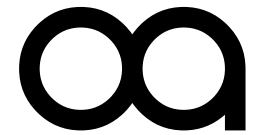
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Optimal Audio

There are three amplifiers in the SmartAmp range:

SmartAmp 10

Two channels of Class D amplification, 125W each with power sharing, low impedance or 70 – 100V output, integrated DSP



SmartAmp 20

Four channels of Class D amplification, 125W each with power sharing between pairs of channels, low impedance or 70 – 100V output, integrated DSP



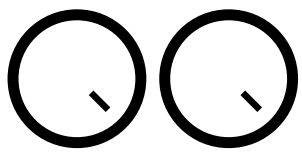
SmartAmp 30

Four channels of Class D amplification, 250W each, low impedance or 70 – 100V output, integrated DSP



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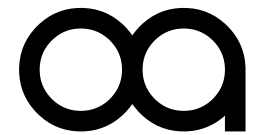
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Optimal Audio



Start using your SmartAmp

All SmartAmps come loaded with DSP presets for Optimal Audio Up series ceiling speakers and the smaller models in the Cuboid range. Presets are easily selected via the dip switches on the rear panel. Presets can be found later in this guide.

SmartAmp 10 and 20 offer increased flexibility through power sharing between pairs of channels. This means that if the power requirement on one channel of an adjacent pair is required to deliver more than its rated 125W, it can draw unused power from its partner channel, assuming it has the power available.

This does not apply for SmartAmp 30, which offers 4 channels of 250 W.

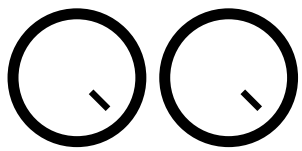
All SmartAmp models use identical connectors, which are supplied with the units. Inputs are 3.5mm pitch green Euro Block connectors. Amplifier outputs are 5mm pitch green Euro Block connectors. Refer to the diagrams on the rear panel of SmartAmp for the correct wiring, and the Optimal Audio Connectors and

Cables, Lights and Labels Quick Start Guide, which will help you get the wiring right.

- Connect the output of your Optimal Audio Zone 4 or 8 that relates to the loudspeakers in the area you want your SmartAmp to power
- Once you have connected everything up, plug your SmartAmp into the mains power and turn it on
- Turn the relevant amplifier channel volume knob all the way up
- Apply signal and the amplifier will automatically wake up, the front panel LED turning from red (standby) to green (operational)
- Green LED's will illuminate on the channels to which signal is applied.

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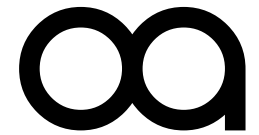
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Powering Up

240V AC, 50/60Hz. Use the mains cable appropriate to your region as supplied with the amplifier and connect it to a switched mains supply.

SmartAmp 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 and that all DIP switch options are selected appropriately before connecting the amplifier to mains power.

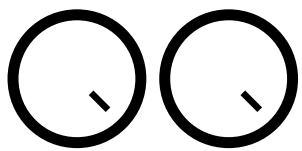
NOTE

SmartAmps are Energy Star compliant and will sleep when not in use to minimize energy consumption. The amplifier will wake up from standby when an input signal of -57dBu or above is present.

If using in conjunction with a paging system, we would recommend playing background music through the system to ensure the amplifier remains active. After 25 minutes without a signal the amplifier will return to standby mode.

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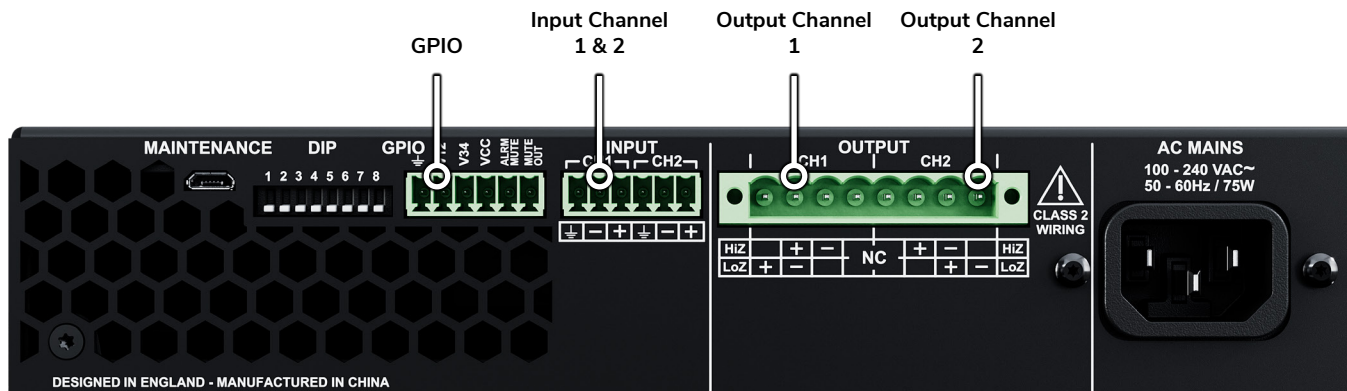
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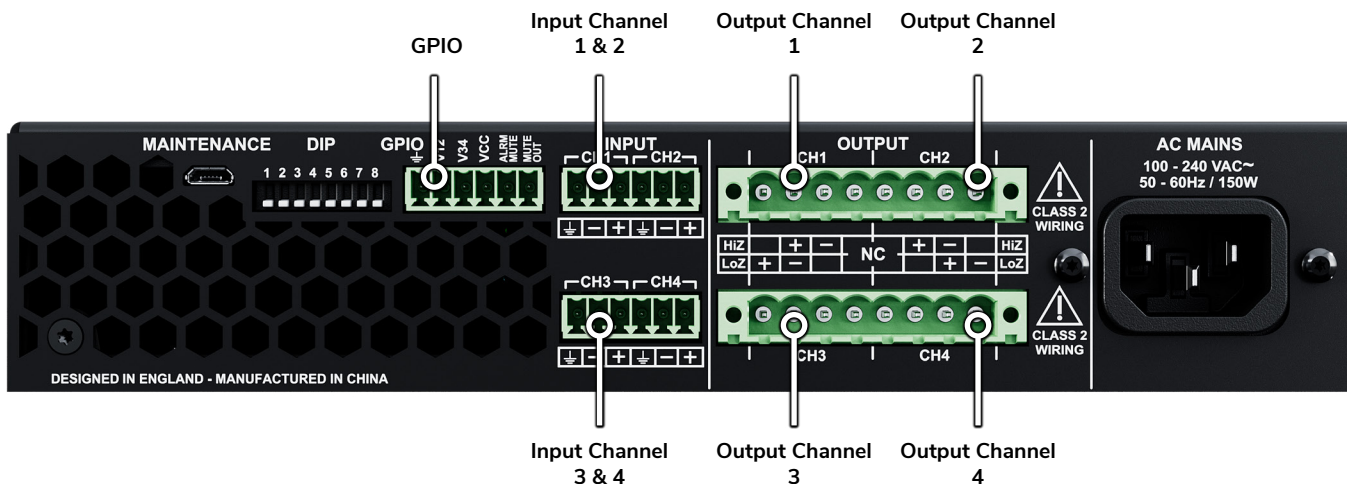
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Rear Panel Connections & Controls

SmartAmp 10



SmartAmp 20 & SmartAmp 30



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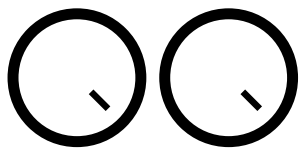
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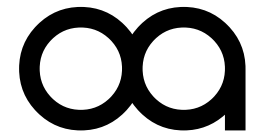




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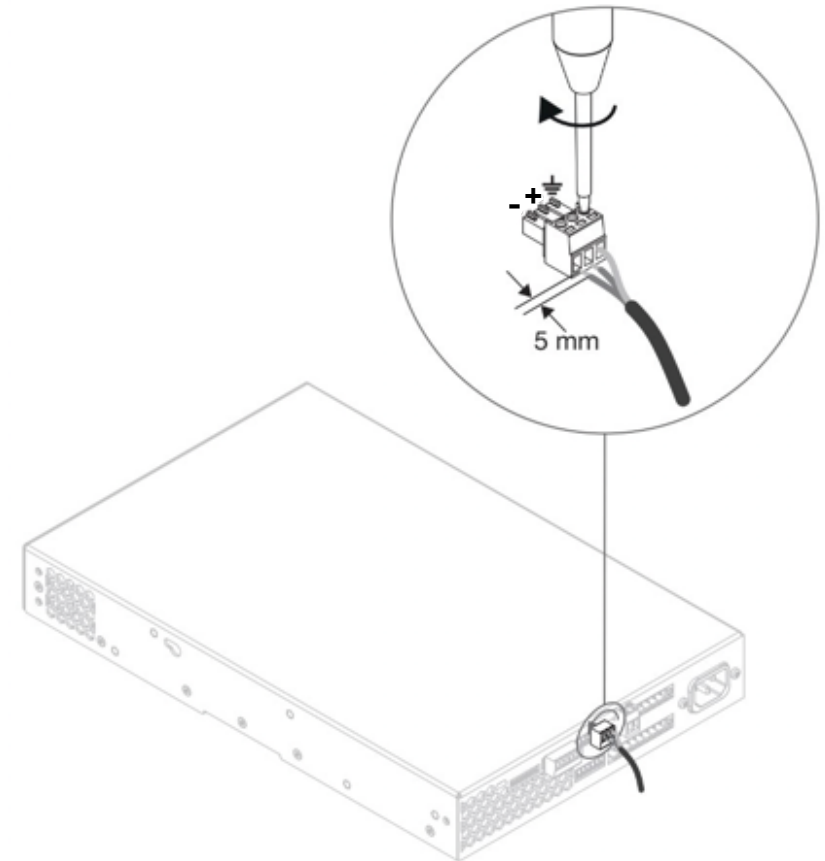


Optimal Audio

Input Connections

SmartAmp inputs are of balanced, line level format and require the use of suitable two-core, screened signal cable.

Input connections to SmartAmp are achieved via male 'Euro Block' connectors. Connecting cables to the supplied female input connectors is illustrated below



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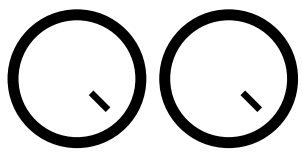
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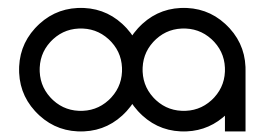
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Loudspeaker Outputs

All channels are capable of both Low-Z and Hi-Z (70V or 100V) outputs.

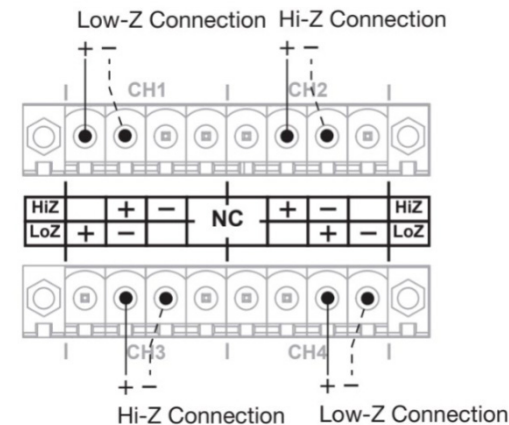
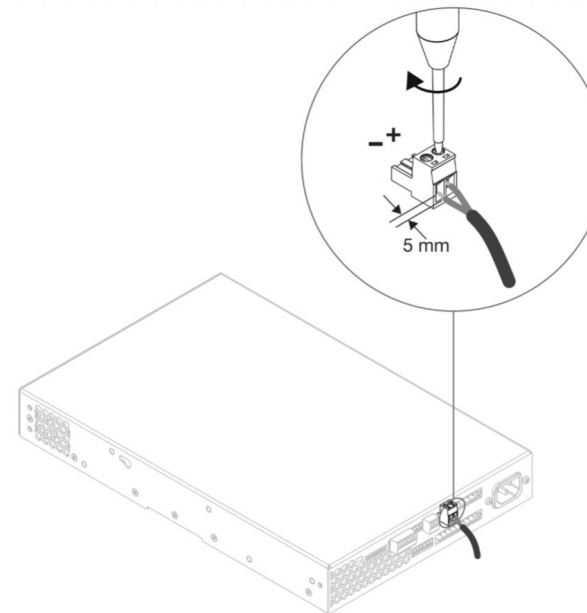
Output impedance is selected by a combination of the impedance switches and the active preset. Where presets include subs, these channels are fixed at low impedance.

It is critical that the correct connections are made using the appropriate 'Euro Block' connectors, supplied with the unit. Again, ensure the amplifier is off when connecting loudspeakers and check that you have used the correct combination of pins for your application.

Be aware that the Hi-Z output pins can deliver voltages up to 100 volts!

Output connections from SmartAmp are achieved via male 'Euro Block' connectors. Ensure that speaker connection polarity is correct throughout the installation: positive (+) amplifier terminals should always be connected to positive speaker terminals and negative (-) amplifier terminals always connected to negative speaker terminals.

Together with DIP switch configuration, the output connector blocks provide connection options that enable channel independent selection of Hi-Z or Low-Z mode. Connecting cables to the supplied female output connector, and the selection of Hi-Z or Low-Z connection options as shown in the diagram.



Ch1: Low-Z connection
Ch2: Hi-Z connection
Ch3: Hi-Z connection
Ch4: Low-Z connection



The caution symbol printed next to the OUTPUT terminals of the SmartAmp amplifier is in addition to the "CLASS 2 WIRING" text intended to alert the user to the risk of hazardous energy. Output connectors that could pose a risk are marked with caution symbol. Do not touch the output terminals while the amplifier power is on. Make all connections with the amplifier turned off.

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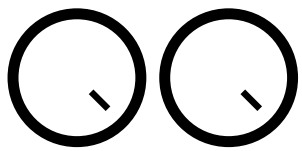
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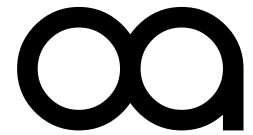




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The next two pages tell you how to set the dip switches on the rear of your SmartAmp to suit your installation.

Dip Switches

Firstly, set dip switches one to five on the rear panel according to these charts, depending on which loudspeakers you are using.

Switch view is looking at the back of the amplifier, so switch one is on the far left, switch eight on the far right of the switch bank. The white square on the chart denotes switch position.

If you are not using Optimal Audio loudspeakers, or are applying the loudspeaker presets in an Optimal Audio Zone, use preset zero.

Setting all DIP switches to OFF (preset 0) also unlocks the Custom Configuration tab in SmartAmp Configuration, where you can build your own per-output processing chain. See “Custom Configuration” earlier in this guide.

In SmartAmps 20 and 30, preset 23 is specifically designed for situations where you are using a low impedance subwoofer (for example, 8Ω) with high impedance (70 or 100V line) satellite speakers.

The next page explains further settings for this preset.

Any preset with a * means crossover mode is enabled.
Output channel pairs are routed from the odd inputs:

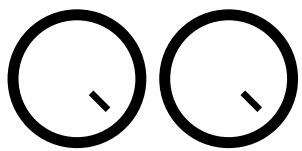
Input 1 -> Output 1
Input 1 -> Output 2
Input 3 -> Output 3
Input 3 -> Output 4

Front panel level controls are now enabled.

Preset No.	SmartAmp 10 Speaker Configuration		SmartAmp 20, 30 Speaker Configuration				DIP SWITCH POSITION (WHITE)				
	CH1	CH2	CH1	CH2	CH3	CH4	1	2	3	4	5
0	None	None	None	None	None	None					
1	Up 3	Up 3	Up 3	Up 3	Up 3	Up 3					
2	Up 4	Up 4	Up 4	Up 4	Up 4	Up 4					
3	Up 40	Up 40	Up 40	Up 40	Up 40	Up 40					
4	Up 4S	Up 4S	Up 4S	Up 4S	Up 4S	Up 4S					
5	Up 6	Up 6	Up 6	Up 6	Up 6	Up 6					
6	Up 60	Up 60	Up 60	Up 60	Up 60	Up 60					
7	Cuboid 6	Cuboid 6	Cuboid 6	Cuboid 6	Cuboid 6	Cuboid 6					
8	Cuboid 3	Cuboid 3	Cuboid 3	Cuboid 3	Cuboid 3	Cuboid 3					
9	Cuboid 5	Cuboid 5	Cuboid 5	Cuboid 5	Cuboid 5	Cuboid 5					
10	CDD5	CDD5	Cuboid 8	Cuboid 8	Cuboid 8	Cuboid 8					
11	None	None	Cuboid 10	Cuboid 10	Cuboid 10	Cuboid 10					
12	Sub 6	Sub 6	Sub 10	Sub 10	Sub 10	Sub 10					
13	Sub 10	Sub 10	Sub 6	Up 3	Sub 6	Up 3					
14	Sub 10	Up 3	Sub 10	Up 4	Sub 10	Up 4					
15	Sub 10	Up 4	Sub 10	Up 40	Sub 10	Up 40					
16	Sub 10	Up 40	Sub 10	Up 4S	Sub 10	Up 4S					
17	Sub 10	Up 4S	Sub 10	Up 6	Sub 10	Up 6					
18	Sub 10	Up 6	Sub 10	Up 60	Sub 10	Up 60					
19	Sub 10	Up 60	Sub 10	Cuboid 3	Sub 10	Cuboid 3					
20	Sub 10	Cuboid 3	Sub 10	Cuboid 5	Sub 10	Cuboid 5					
21	Sub 10	Cuboid 5	Sub 10	Cuboid 8	Sub 10	Cuboid 8					
22	Sub 10	Cuboid 6	Sub 10	Cuboid 10	Sub 10	Cuboid 10					
23	Sub 6	Up 3	Low Z Only	HiZ Only	Low Z Only	HiZ Only					
24	Sub 6	Up 4	Sub 6	Up 4	Sub 6	Up 4					
25	Sub 6	Up 40	Sub 6	Up 40	Sub 6	Up 40					
26	Sub 6	Up 4S	Sub 6	Up 4S	Sub 6	Up 4S					
27	Sub 6	Up 6	Sub 6	Up 6	Sub 6	Up 6					
28	Sub 6	Up 60	Sub 6	Up 60	Sub 6	Up 60					
29	Sub 6	Cuboid 3	Sub 6	Cuboid 3	Sub 6	Cuboid 3					
30	Sub 6	Cuboid 5	Sub 6	Cuboid 5	Sub 6	Cuboid 5					
31	Sub 6	Cuboid 6	Sub 10	Cuboid 6	Sub 10	Cuboid 6					

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Dip Switches six and seven

To set the amplifier up for low impedance or high impedance (70 or 100V line) use dip switches six and seven, as per the below. Use the 4Ω setting for loads below 8Ω, and use the 8Ω setting for 8Ω to 16Ω. Note that in high impedance mode, a 70Hz high pass filter becomes active.

When using any pre-set from the table **EXCEPT** number 23, dip switches six and seven are set as per this chart, and apply to all channels in the amplifier.

DIPS	6	7	
0	☐	☐	Low-Z 8 ohms
1	☐	☐	High-Z 100V
2	☐	☐	Low-Z 4 ohms
3	☐	☐	High-Z 70V

When using preset 23 on a SmartAmp 20 or 30, dip switches six and seven behave differently, to set the channels up for different load types. These are shown in this chart.

DIP SWITCH 6&7 COMBINATIONS FOR **PRESET 23 ONLY**

DIPS	6	7	CH1	CH2	CH3	CH4
0	☐	☐	8 ohms	70V	8 ohms	70V
1	☐	☐	8 ohms	100V	8 ohms	100V
2	☐	☐	4 ohms	100V	4 ohms	100V
3	☐	☐	4 ohms	70V	4 ohms	70V

Per-output impedance in software

When all DIP switches are set to OFF (0) and Custom Configuration is active, output impedance can be set per output in software (4Ω, 8Ω, 70V or 100V) instead of globally via DIP switches 6 and 7. This supports installations that mix low-impedance and high-impedance loads on the same amplifier.

Dip Switch eight

This sets the input sensitivity of the amplifier to be used with either an Optimal Audio Zone, or a third party system.

When it is off, (lower position) an input level of +4dBu will give full amplifier output, suitable for integration with most other manufacturers' equipment. Front panel gain controls are active.

DIPS	8
0	☐

When used with an Optimal Audio Zone, turn this switch on (upper position).

This sets the amplifier up to give full power for +20dBu input level, as required for a Zone. Front panel gain controls are inactive, and all adjustments are made in Zone, **EXCEPT** when a crossover preset is used – then the gain controls are active so level adjustment between subs and satellites can be made.

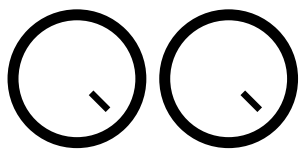
DIPS	8
1	☐

Gain mode in software

Gain mode can also be set in software via the Custom Configuration tab. The software setting only takes effect when all DIP switches are OFF (0). When a DIP-switch preset is active, DIP switch 8 controls gain mode as described above.

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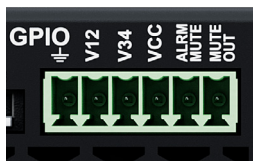
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GPIO (General Purpose In/Out) Connections

The GPIO connectors enable remote control of key parameters of SmartAmp:



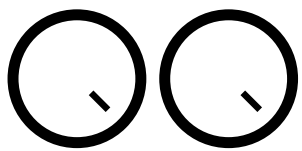
	Function	Notes
GPIO GND (1)	Ground reference for all GPIO pins	
GPIO v12 (2) *	Channel 1 & 2 auxiliary gain control	Connect to a potentiometer ($>10k\Omega$) wiper between the VCC and GND pins. The maximum level available when using GPIO control is defined by the front panel gain control setting.
GPIO V34 (3) *	Channel 3 & 4 auxiliary gain control (four channel amplifiers only)	Connect to a potentiometer ($>10k\Omega$) wiper between the VCC and GND pins. The maximum level available when using GPIO control is defined by the front panel gain control setting.
GPIO VCC (4)	Control voltage output	Provides a 3.3V DC control output (100Ω output impedance) for up to two volume control potentiometers ($>10k\Omega$)
GPIO STB (5)	Alarm Mute	Connect to GND pin to mute the unit and place it in standby mode
GPIO GPO (6)	Mute Out	+3.3V DC indicates normal status, 0V DC indicates one or more channels in protection mode

*In order to conform to EMC specifications, shielded cable must be employed when connecting external volume control potentiometers to the GPIO connectors. This is to prevent the cable acting as an antenna for any radiated emissions from within the amplifier.

Be sure to use the appropriate Euro Block connector for the GPIO inputs

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ZonePad VL1 Volume Wall Controller

Quick start guide

The ZonePad VL1 is a passive, single-dial volume controller for the Optimal Audio SmartAmp range (10 / 20 / 30). It mounts in a standard back box and connects via a 3-pin terminal block.

Connecting VL1 to SmartAmp

Safety Always power off the SmartAmp before wiring or unwiring the VL1.

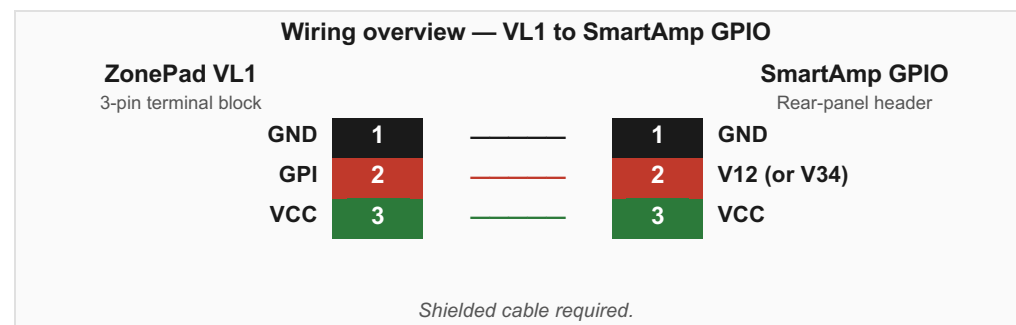
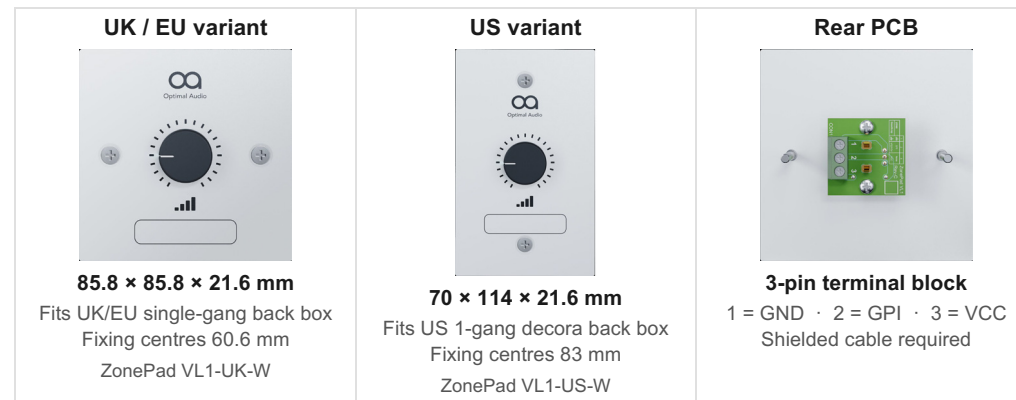
Pin assignment

VL1 pin	SmartAmp	Notes
1 GND	GND	Ground / shield
2 GPI	V12 (or V34)	Control voltage
3 VCC	VCC	3.3 V supply

Dual-zone (SmartAmp 20/30): wire a second VL1's pin 2 to V34. Use shielded cable.

Start using your VL1

1. With the SmartAmp powered off, fit the VL1 into its back box and connect the supplied 3-pin terminal block.
2. Set the SmartAmp front-panel channel gain to the desired maximum level — the VL1 attenuates from this point.
3. Power up the SmartAmp and apply signal.
4. Rotate the VL1 dial fully anti-clockwise (min) then clockwise (max) to confirm smooth level control.



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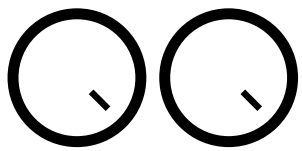
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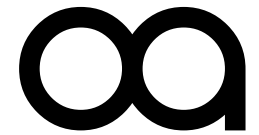




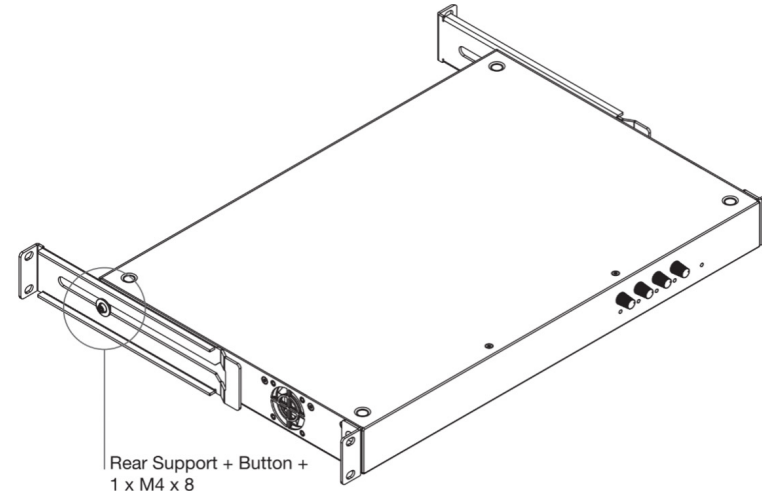
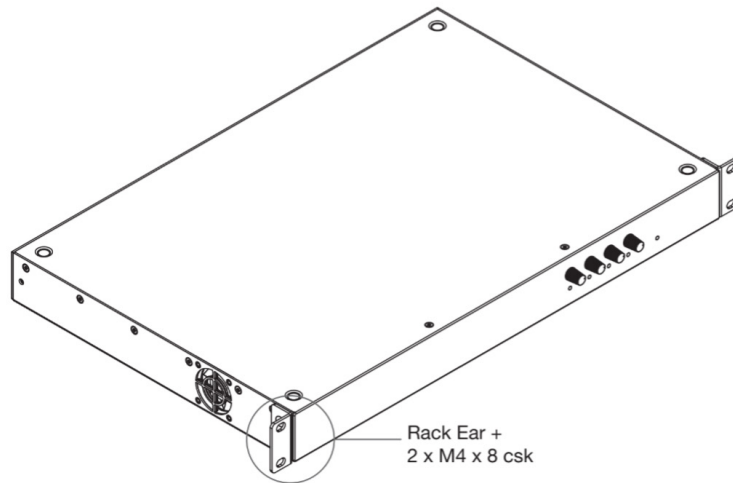
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SmartAmp 30 showing rack ears and with the rear support attached

Installation & Rack Mounting

Optimal Audio provide a set of hardware options for rack mounting SmartAmp in several ways.

Rack Kit A (see Appendix A) is suitable for rack mounting both full and half-rack-sized units and enables coupling of half-rack-sized units to fit two SmartAmp 10 or 20 into a single rack space.

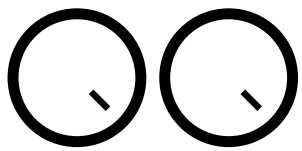
Rack Kit B (see Appendix B) is for providing rear support to units when mounted in mobile racks and other more demanding situations

SmartAmp Wall Mount (See Appendix C) is used for mounting any of the SmartAmp range against flat surfaces

SmartAmp 30 is shipped with rack mount 'ears' attached as illustrated above and is primarily intended to be installed in an equipment rack. The installation and equipment rack should be configured to provide appropriate ventilation airflow space around the sides and rear of the amplifier. Ventilation airflow space of at least 25 mm (1 in) should be maintained along at least one side of the amplifier at all times. Ventilation apertures are also located on the rear panel of the amplifier and must not be obstructed. It is important to retain at least 80 mm (3.1 in) free space for airflow behind the amplifier rear panel.

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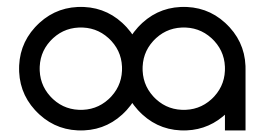
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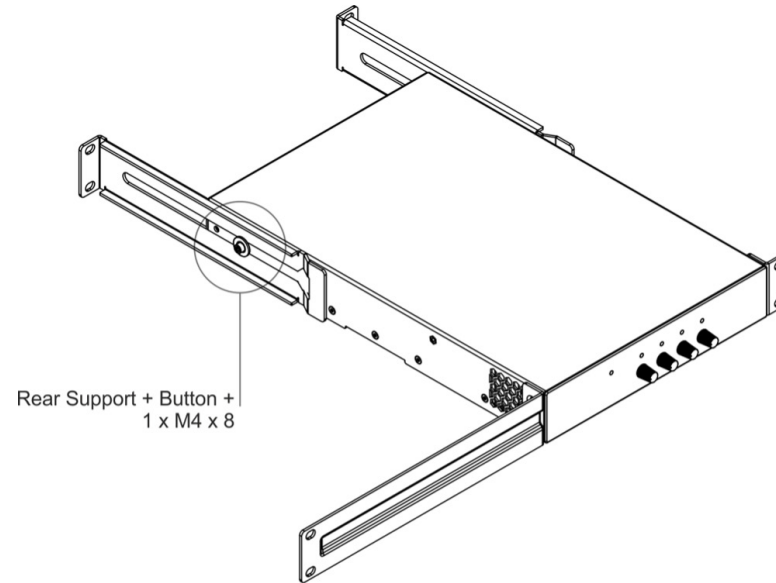
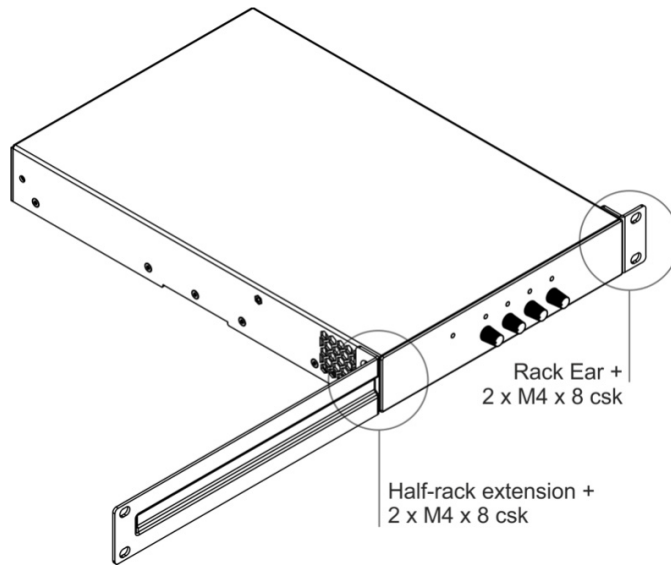
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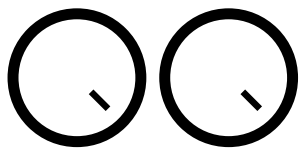
Installation & Rack Mounting

SmartAmp 20 is shipped without rack mount hardware attached but can be configured for rack installation using one standard rack 'ear' and one half-rack extension piece as illustrated. The installation and equipment rack should be configured to provide appropriate ventilation airflow space around the sides and rear of the amplifier. Ventilation airflow space of at least 25 mm (1 in) should be maintained along at least one side of the amplifier at all times. Ventilation apertures are also located on the rear panel of the amplifier and must not be obstructed. It is important to retain at least 80 mm (3.1 in) free space for airflow behind the amplifier rear panel.

In addition to rack mount ears, optional rack mount rear support hardware is available and can be attached to the amplifier. Rear support hardware may be appropriate if the amplifier is to be used in a mobile rack or potentially be subject to significant movement. Multiple SmartAmp 20 can also be mechanically connected using accessory connecting plates.

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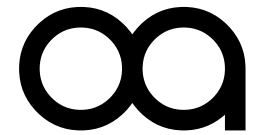
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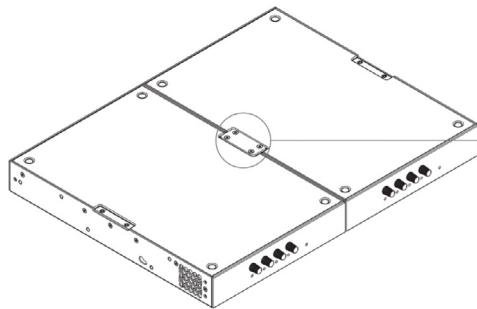
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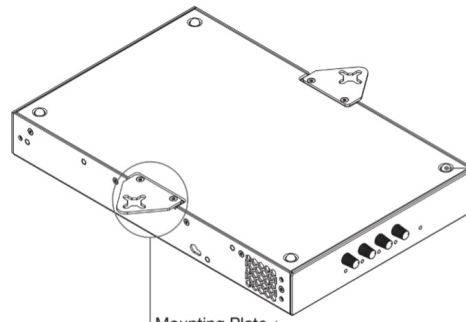
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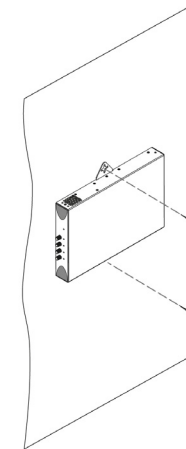


Connection Plate +
4 x M3 x 6 csk

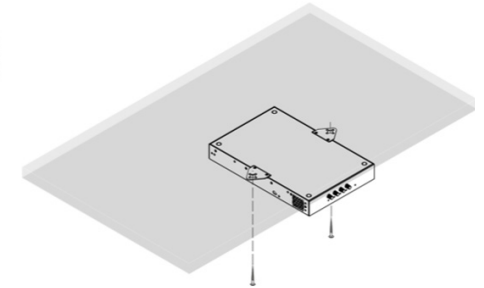


Mounting Plate +
2 x M3 x 6 csk

Adhesive Foot



Note: Only permissible
mounting orientation for
on wall mounting



Installation & Rack Mounting

Two SmartAmp 20 amplifiers mechanically connected through the connection plate.

SmartAmp 10 is also shipped without rack mount hardware attached but can be configured for rack installation in the same way as SmartAmp 20.

Free-standing

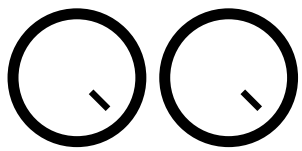
If not to be installed in an equipment rack, SmartAmp can be placed free-standing on a flat surface. Adhesive rubber feet are supplied for this purpose.

SmartAmp 10 and SmartAmp 20 can also be attached to the underside of desks or wall mounted using connecting plate hardware. The adhesive rubber feet should also be used in these circumstances. Wall and desk mounting is illustrated above.

It is important in any free-standing installation that airflow through the amplifier's side panel mounted fans and rear panel ventilation apertures is not compromised by adjacent items. At least 80mm of free space behind the amplifier and 25mm along at least one side should be retained at all times.

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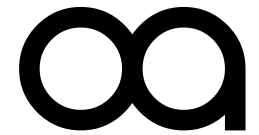
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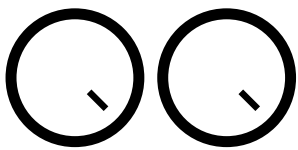
Your Optimal Audio SmartAmp should require minimal maintenance and prove to be a reliable workhorse in your sound system

From time to time it may be necessary to clean the fan filters. SmartAmps are forced air cooled, and if located in certain environments the filters can become blocked, causing the amplifier to run at high temperatures, with the potential for shut down.

If in doubt, contact your distributor, who will help you with whatever you need to keep your Optimal Audio system running at its best.

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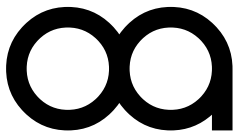
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TECHNICAL SPECIFICATIONS	SmartAmp 10	SmartAmp 20	SmartAmp 30
TYPE	CLASS D power amplifier with DSP	CLASS D power amplifier with DSP	CLASS D power amplifier with DSP
POWER OUTPUT (4Ω-16Ω)	2 x 125W	4 x 125W	4 x 250W
70V - 100V OUTPUT	2 x 125W	4 x 125W	4 x 250W
DIGITAL SIGNAL PROCESSING	Per-output: 3-band parametric EQ, two-band crossover (Linkwitz-Riley or Butterworth 24dB/oct), peak limiter (threshold/attack/release), delay up to 60 ms. Speaker presets for Optimal Audio and Martin Audio loudspeakers. User-definable custom presets.		
COOLING	Forced air cooling with fan	Forced air cooling with fan	Forced air cooling with fan
ANALOGUE IN/LINK	2 balanced line inputs on Euroblock connectors	4 balanced line inputs on Euroblock connectors	4 balanced line inputs on Euroblock connectors
ANALOGUE INPUT IMPEDANCE	10kΩ unbalanced, 20kΩ balanced	10kΩ unbalanced, 20kΩ balanced	10kΩ unbalanced, 20kΩ balanced
MAXIMUM ANALOGUE INPUT LEVEL	+24dBu	+24dBu	+24dBu
AMPLIFIER OUTPUTS	Euroblock	Euroblock	Euroblock
SIGNAL TO NOISE RATIO	> 100dB (A-weighted, 20Hz - 20kHz, 8Ω load)	> 100dB (A-weighted, 20Hz - 20kHz, 8Ω load)	> 100dB (A-weighted, 20Hz - 20kHz, 8Ω load)
FREQUENCY RESPONSE	20Hz - 20kHz, +0/-0.25dB (8Ω load, 3 dB below rated power)	20Hz - 20kHz (+0/-0.25dB (8Ω load, 3dB below rated power)	20Hz - 20kHz, +0/-0.25dB (8Ω load, 3dB below rated power)
TOTAL HARMONIC DISTORTION	< 0.05 % (20Hz - 20kHz, 8Ω load, 3dB below rated power)	< 0.05 % (20Hz - 20kHz, 8Ω load, 3dB below rated power)	< 0.05 % (20Hz - 20kHz, 8Ω load, 3dB below rated power)
SLEW RATE	8.796V/μS at 70V peak, low impedance, 17.77V/μS at 100V peak, high impedance	8.796V/μS at 70V peak, low impedance, 17.77V/μS at 100V peak, high impedance	8.796V/μS at 70V peak, low impedance, 17.77V/μS at 100V peak, high impedance
DAMPING FACTOR	370 with 8Ω load	370 with 8Ω load	370 with 8Ω load
CONTROL AND MONITORING	GPIO	GPIO	GPIO
DSP SAMPLE RATE	48kHz	48kHz	48kHz
MAINS POWER INPUT	Universal mains, 100-240V, 50-60Hz	Universal mains, 100-240V, 50-60Hz	Universal mains, 100-240V, 50-60Hz
MAINS CONNECTOR	IEC	IEC	IEC
POWER CONSUMPTION	75W	150W	300W
HEAT GENERATED	270kJ per hour	540kJ per hour	1080kJ per hour
DIMENSIONS	(W) 220mm x (H) 43.9mm x (D) 277mm (W) 8.67" x (H) 1.73" x (D) 10.91"	(W) 220mm x (H) 44mm x (D) 353mm (W) 8.67" x (H) 1.73" x (D) 13.90"	(W) 440mm x (H) 44mm x (D) 308mm (W) 17.32" x (H) 1.73" x (D) 12.13"
WEIGHT	1.9kg (4.2lb)	2.4kg (5.3lb)	3.6kg (7.9lb)
ACCESSORIES (available separately)	Rack ears and connection plate, rear rack support kit, wall/desktop mount kit	Rack ears and connection plate, rear rack support kit, wall/desktop mount kit	Rear rack support kit
ACCESSORIES (included)	n/a	n/a	2 x rack ears

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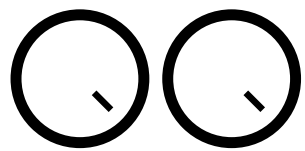
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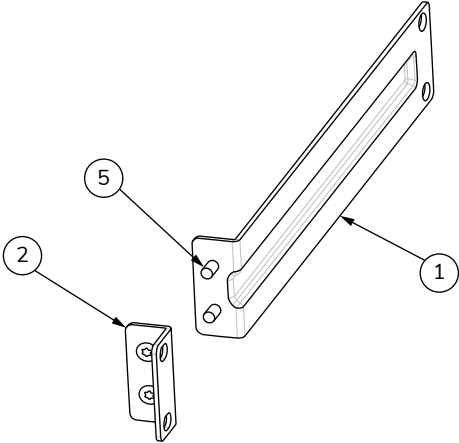
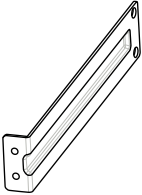
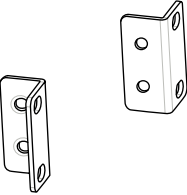
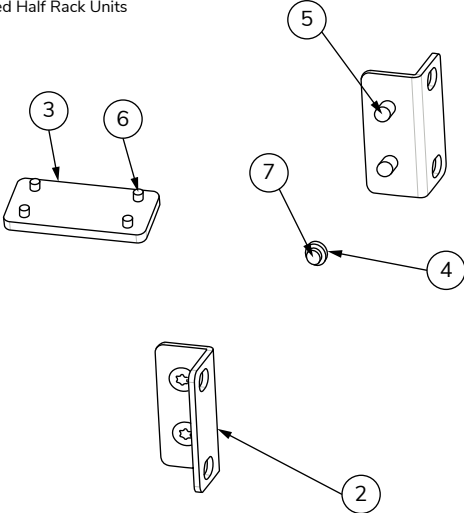
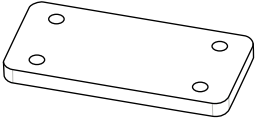
SmartAmp

Amplifiers with DSP



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Appendix A

Single Half Rack Unit 	ITEM NO.	DESCRIPTION	Qty.
	1	Long Rack ear 	1
	2	Rack Ear 	2
Two Joined Half Rack Units 	3	Coupling Plate 	1
	4	SmartAmp Support Bush 	1
	5	Torx Screw Countersink M4 x 8 	4
	6	Torx Screw Countersink M3 x 6 Black 	4
	7	Torx Screw Button M3 x 6 Black 	1



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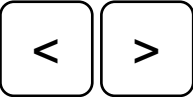
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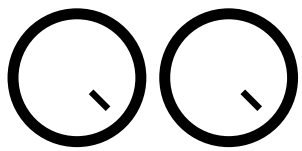
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SmartAmp Rack Kit A

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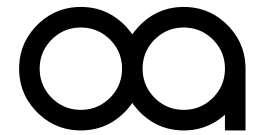




Amplifiers

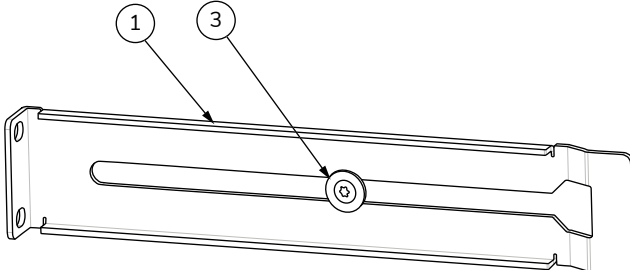
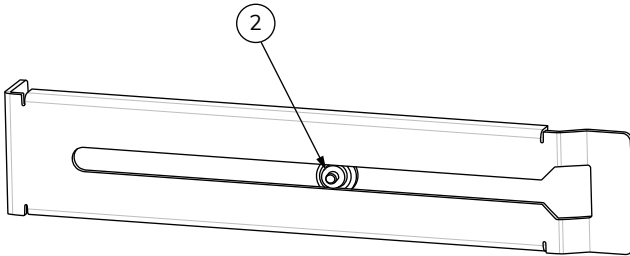
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Amplifiers with DSP



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Appendix B

Rack Kit B Front		ITEM NO.	DESCRIPTION	Qty
		1	Support Bracket	2
		2	Support Bush	2
		3	Torx Screw Flathead M4 x 8	2



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SmartAmp Rack Kit B

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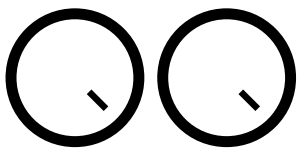
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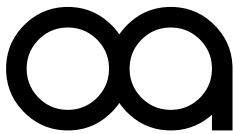




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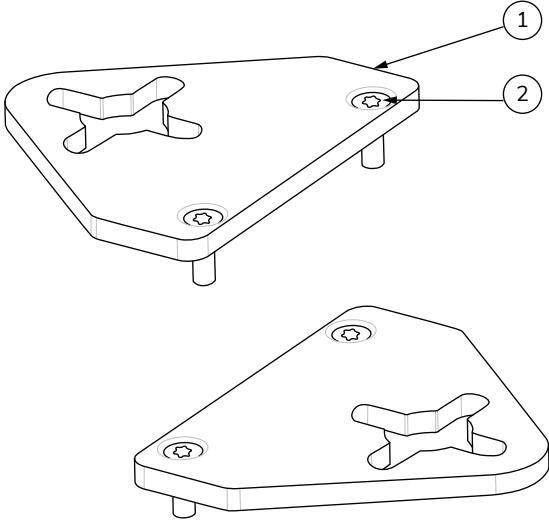
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Amplifiers with DSP



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Appendix C

SmartAmp Wall Mount		ITEM NO.	DESCRIPTION	Qty.
		1	Wall Mount Bracket	2
		2	Torx Screw Countersink M3 x 6 Black	4



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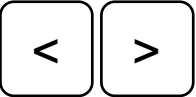
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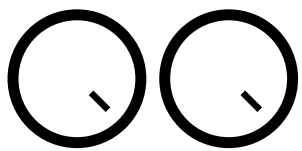
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SmartAmp Wall Mount
Part Number: WALLMNT-B

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Amplifiers

SmartAmp

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WARNING!

**DO NOT EXPOSE THIS EQUIPMENT
TO RAIN OR MOISTURE**

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of **sufficient magnitude to constitute a risk** of electric shock to persons.

THIS EQUIPMENT MUST BE EARTHED



Class 2 Wiring

Exposed high voltage on the speaker terminals. Touching the uninsulated terminals or wiring may result in an unpleasant sensation.



Class 2 Câblage

Haute tension exposée sur les bornes des haut-parleurs. Toucher les bornes ou le câblage non isolés peuvent entraîner une sensation désagréable.

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation opening. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. To reduce the risk of electrical shock, the power cord shall be connected to a mains socket outlet with a protective earthing connection.
10. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Do not unplug the unit by pulling on the cord, use the plug.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. The appliance coupler, or the AC Mains plug, is the AC mains disconnect device and shall remain readily accessible after installation.
16. The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
17. Do not remove any covers, loosen any fixings or allow items to enter any aperture.

FCC Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

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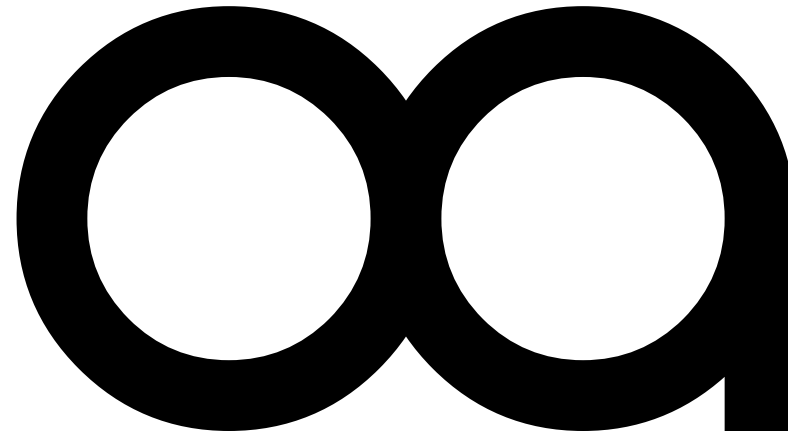
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