

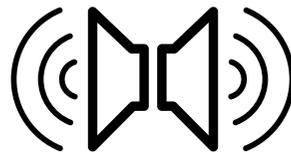
Optimal Audio



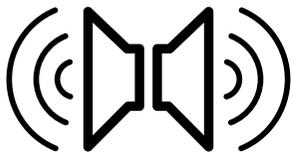
USER GUIDE

Up

Ceiling Loudspeaker



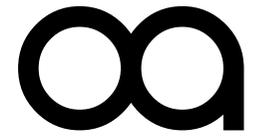
Loudspeakers



Loudspeakers

Up

Ceiling Loudspeakers



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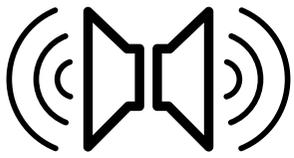


Congratulations on your choice of Optimal Audio for your latest sound system installation.

The Optimal Audio range of compatible audio zoners, amplifiers and loudspeakers are designed to work together simply and effectively. Our quick start guides will take you through the simple connection and set up procedure.

Optimal Audio Up loudspeakers deliver high-quality, even coverage with minimal visual impact. When used in conjunction with the rest of the Optimal Audio eco-system Up will surprise you with its punchy performance and professional aesthetic. This Quick Start Guide will help you get your Ups positioned and connected correctly.

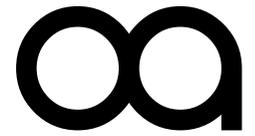
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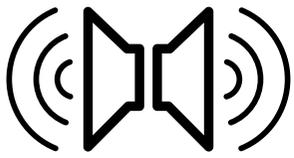


Model	Format	Enclosure	Impedence	Power	Frequency Response
Up 3	Single 3" driver	Steel back can	8 Ohm or 70V – 100V line	Rated power (AES) 20W	95Hz – 15kHz
Up 40	Single 4" driver	Open back	70V – 100V line only	Rated power (AES) 10W	87Hz – 15kHz
Up 4S	Two-way passive coaxial 4"	Shallow steel back can	8 Ohm or 70V – 100V line	Rated power (AES) 15W	110Hz – 15kHz
Up 4	Two-way passive coaxial 4"	Steel back can	8 Ohm or 70V – 100V line	Rated power (AES) 30W	100Hz – 18kHz
Up 60	Two-way passive coaxial 6"	Open back	16 Ohm or 70V – 100V line	Rated power (AES) 60W	65Hz – 18kHz
Up 6	Two-way passive coaxial 6"	Steel back can	16 Ohm or 70V – 100V line	Rated power (AES) 60W	115Hz – 18kHz

The Up range of ceiling speakers has been designed to suit almost any application where distributed sound is required. The models are distinguished by several factors all sharing the same visual aesthetic, conical coverage pattern and signature sound.

The table demonstrates the fundamental differences across the Up range, helping you to choose the right loudspeaker for the job.

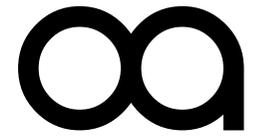
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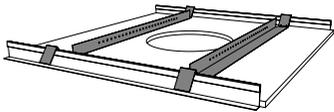
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Fitting Up ceiling loudspeakers

All models in the Up range are supplied with support rails designed to fit 600mm standard ceiling tiles. The following images clearly show the installation procedure step-by-step.

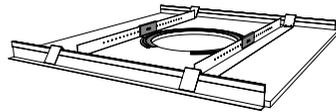
A tile cutout template and a paint shield for each Up model is included. Be sure to cut your holes in the correct tiles before fixing the ceiling speakers!

1.



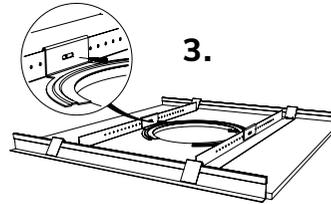
Lay the support rails across the ceiling tile mounting system

2.



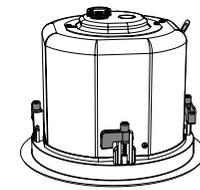
Place the C Ring in between the support rails as shown

3.



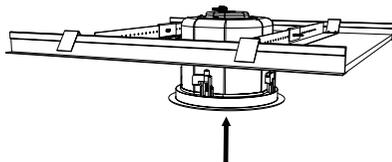
Align the C Ring with the hole cut in the tile and secure

4.



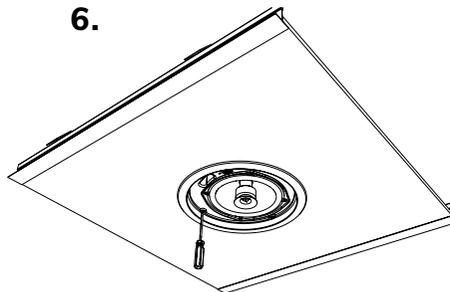
Ensure the locking tabs are in the open position before mounting the loudspeaker

5.



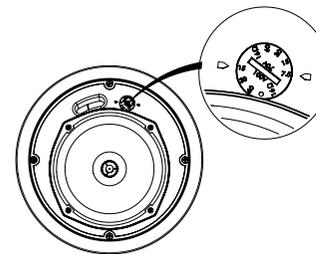
Insert the speaker into the ceiling tile

6.



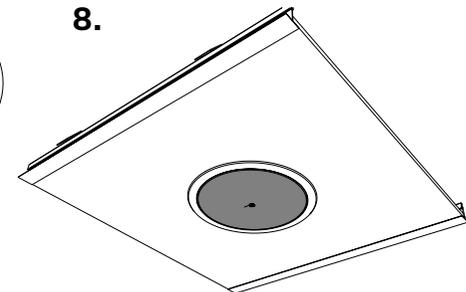
Carefully tighten the locking tabs using a suitable Philips screwdriver until they are tight. Do not overtighten

7.



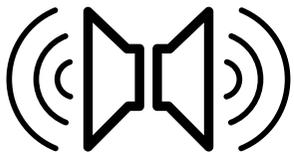
IMPORTANT! Ensure the correct transformer tap is selected

8.



Check the speaker is secure. Once you have tested the system and satisfied yourself it is working correctly and the loudspeaker tapping is correct, fit the supplied loudspeaker grille.

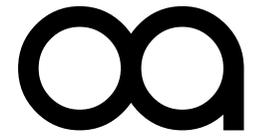
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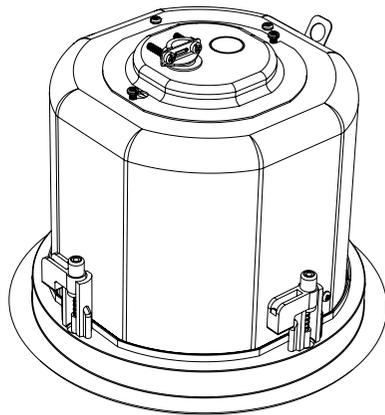
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Connecting Up

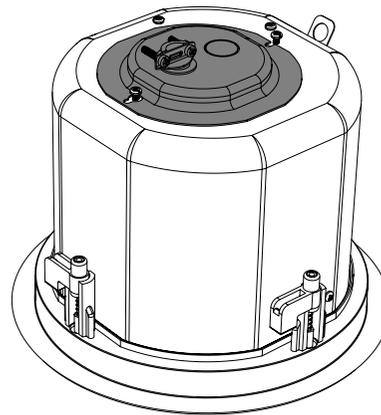
All Up loudspeakers are fitted with 4 pin Euroblock connectors. The terminals are wired as follows:

Pin 1 : Negative In Pin 2 : Negative link through
Pin 3 : Positive In Pin 4 : Positive link through

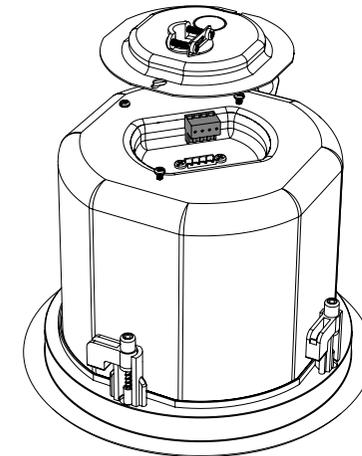
To connect the cable to the loudspeaker terminals, follow this procedure.



Undo the two screws that secure the protective plate on the top of the back can



Slide the plate sideways and lift off

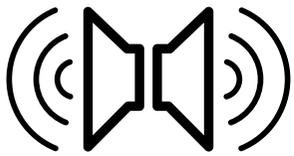


Pass the cable(s) through the cable grip
Connect to the Euroblock terminals as shown above

Replace the plate by reversing the procedure.

⚠ When wiring loudspeaker cables be careful to observe the correct polarity of the cable and connector at both ends.

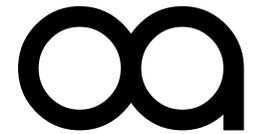
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Matching Speakers and Amplifiers

To get the best from your loudspeakers, it's important to make sure the amplifier you are using is up to the job. Several factors have to be considered, and it's worth clarifying what they mean and how they affect the performance of a loudspeaker.

Loudspeakers tend to be quantified using Watts, but this is purely a measure of the amount of power a loudspeaker can take at its input over time, and not necessarily a measurement of how loud it might go.

Optimal Audio loudspeaker power handling is therefore quoted as Watts (AES) and Watts (Peak); AES is a standard measurement of average power handling over time, and Peak represents the transient power handling capability of the loudspeaker.

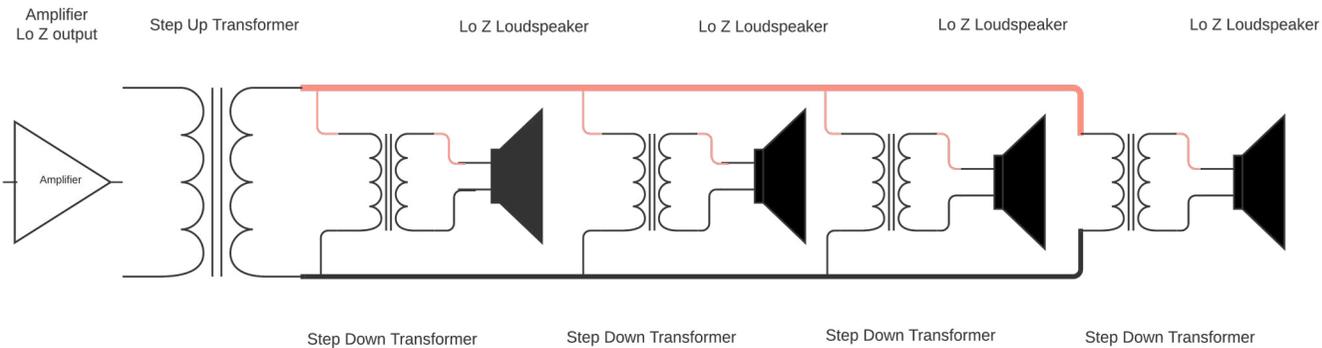
So for an Up 4 the AES power rating is 30 Watts, which will continuously deliver 102dB at 1m distance from the loudspeaker – transients however will

momentarily reach 105dB if you drive it with an amplifier capable of producing enough power to do so.

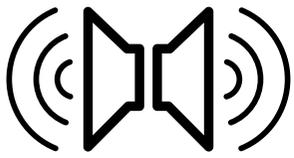
However, this only applies when the loudspeaker is running in low impedance mode (8 or 16 Ohms).

All Up series are capable of running at 70 volt – 100 volt line, and Up 40 can only be run this way. What does this mean?

An amplifier that can produce this level of voltage, either via a transformer on the output or through bridging of channels would normally damage a loudspeaker. Transformers that step the voltage down to suitable level are fitted into the loudspeakers, and the voltage is maintained along the chain.



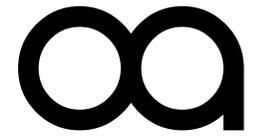
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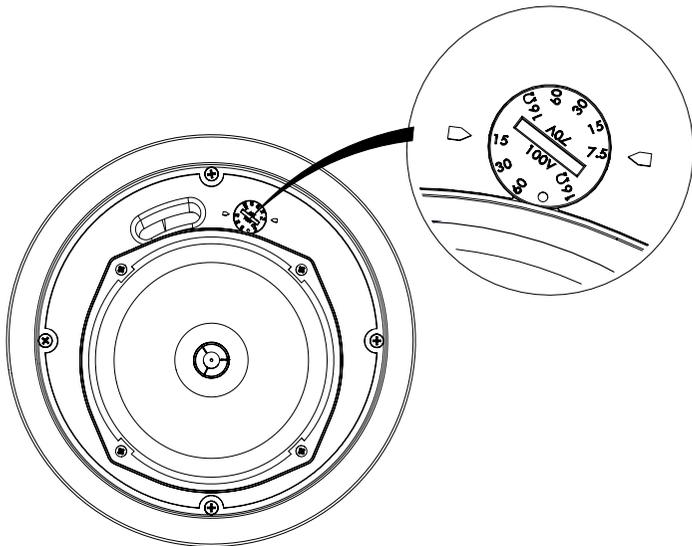


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Each loudspeaker can be 'tapped' to receive a specific voltage, making individual control of the loudspeaker output possible. Take care to use the correct tap setting for the output voltage of the amplifier you are using. In the case of SmartAmps, which can drive either 70 or 100 volt lines, the 70 volt setting is recommended.

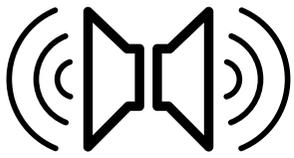
The total number of loudspeakers it is possible to connect to a single amplifier channel is determined by adding the total wattage of the loudspeakers together. For speech systems, where low frequency response is not critical, these systems can offer extremely good value for money.

A 100 Watt amplifier running at 100 volts can drive 100 loudspeakers tapped at 1 Watt, 50 loudspeakers tapped at 2 Watts, or 2 loudspeakers at 50 Watts and anywhere in between. Up series loudspeakers have a wide range of transformer taps to choose from.



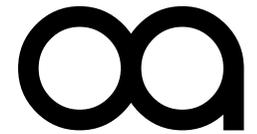
Up model	70V taps (Watts)	100V taps (Watts)	Low Impedence (Ω)
Up 3	15, 7.5, 3.8, 1.9	15, 7.5, 3.8	8
Up 40	6, 3, 1.5, 0.75	6, 3, 1.5	N/A
Up 4S	8, 4, 2, 1, 0.5	8, 4, 2, 1	8
Up 4	25, 12.5, 6.3, 3.2	25, 12.5, 6.3	8
Up 60	60, 30, 15, 7.5	60, 30, 15	16
Up 6	60, 30, 15, 7.5	60, 30, 15	16

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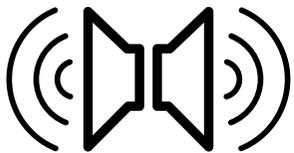
Up Ceiling Loudspeakers



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Specifications	Up 3	Up 40	Up 4S	Up 4	Up 60	Up 6
TYPE	Full range, passive, ceiling speaker	Full range, passive, ceiling speaker	Two-way, full range, passive, ceiling speaker	Two-way, full range, passive, ceiling speaker	Two-way, full range, passive, ceiling speaker	Two-way, full range, passive, ceiling speaker
FREQUENCY RESPONSE (with preset)	95Hz - 15kHz ± 3dB -10dB @68Hz	87Hz - 15kHz ± 3dB -10dB @60Hz	110Hz - 18kHz ± 3dB -10dB @85Hz	100Hz - 18kHz ± 3dB -10dB @74Hz	65Hz to 18kHz ±3dB -10dB @ 50Hz	115Hz - 18kHz ± 3dB -10dB @80Hz
DRIVERS	3" (78mm), coated paper	4" (105mm), coated paper	LF: 4" (105mm), polypropylene injection moulded HF: 1 (25mm) exit/0.7 (20mm) voice coil, silk dome	LF: 4" (105mm), coated paper HF: 1 (25mm) exit/0.7" (20mm) voice coil, silk dome	LF: 6.5" (162mm), coated paper HF: 1" (25mm) exit/ 0.7" (20mm) metal dome	LF: 6.5" (162mm), coated paper HF: 1" (25mm) exit/ 0.7" (20mm) metal dome
RATED POWER	20W (AES) 40W (peak)	10W (AES)	15W (AES) 30W (peak)	30W (AES) 60W (peak)	60W (AES) 120W (peak)	60W (AES) 120W (peak)
NOMINAL IMPEDANCE	8Ω	Tap dependent	8Ω	8Ω	16Ω	16Ω
SENSITIVITY (1W/1m)	84dB	93dB	86dB	87dB	90dB	90dB
MAXIMUM SPL	97dB (cont), 100dB (peak)	100dB (cont)	98dB (cont), 101dB (peak)	102dB (cont), 105dB (peak)	108dB (cont), 111dB (peak)	108dB (cont), 111dB (peak)
CROSSOVER	n/a	n/a	3.5kHz passive	3.5kHz passive	2.7kHz passive	2.7kHz passive
RECOMMENDED HIGH-PASS FILTER	24dB/octave @90Hz	24dB/Octave @80Hz	24dB/octave @85Hz	24dB/octave @90Hz	24dB/octave, 60Hz	24dB/octave @80Hz
TRANSFORMER TAPS @ 70V	15, 7.5, 3.8, 1.9W	6, 3, 1.5, 0.75W	8, 4, 2, 1, 0.5W	25, 12.5, 6.3, 3.2W	60, 30, 15, 7.5W	60, 30, 15, 7.5W
TRANSFORMER TAPS @ 100V	15, 7.5, 3.8W	6, 3, 1.5W	8, 4, 2, 1W	25, 12.5, 6.3W	60, 30, 15W	60, 30, 15W
DISPERSION (-6dB)	130° conical	130° conical	150° conical	120° conical	110° conical	110° conical
BACK CAN	Zinc-plated steel	n/a	Zinc-plated steel	Zinc-plated steel	n/a	Zinc-plated steel
BAFFLE	ABS	ABS	ABS	ABS	ABS	ABS
PROTECTIVE GRILLE	Perforated steel with cloth backing	Perforated steel with cloth backing	Perforated steel with cloth backing	Perforated steel with cloth backing	Perforated steel	Perforated steel with cloth backing
FIRE RATING	UL94-V0	UL94-V0	UL94-V0	UL94-V0	UL94-V0	UL94-V0
CONNECTORS	4 pin Euroblock with link out	Bare wires	4 pin Euroblock with link out	4 pin Euroblock with link out	4 Pin Euroblock with link out	4 pin Euroblock with link out
FITTINGS	C-ring support backing plate	C-ring support backing plate	C-ring support backing plate	C-ring support backing plate	C-ring support backing plate	C-ring support backing plate
DIMENSIONS (inc. Grille)	(Ø) 202mm x (D) 165mm {Ø} 7.95" x (D) 5.7"	(Ø) 202mm x (D) 117mm {Ø} 7.95" x (D) 4.62"	(Ø) 202mm x (D) 144mm {Ø} 7.95" x (D) 5.67"	(Ø) 202mm x (D) 227.5mm {Ø} 7.95" x (D) 8.96"	(Ø) 251mm x (D) 103.5mm {Ø} 9.88" x (D) 4.1"	(Ø) 251mm x (D) 205.1mm {Ø} 9.88" x (D) 8.08"
CUT-OUT DIAMETER	178mm (7.01")	178mm (7.01")	178mm (7.01")	178mm (7.01")	222mm (8.74")	222mm (8.74")
WEIGHT	1.6kg (3.5lb)	1.3kg (2.9lb)	2.2kg (4.9lb)	2.2kg (4.9lb)	2.24kg (4.94lb)	3.0kg (6.6lb)
INCLUDED ACCESSORIES	2 tile support rails (for 2ft or 600mm tile spans), cutout template, paint shield, removable locking, multi-pin connector	2 tile support rails (for 2ft or 600mm tile spans), cutout template, paint shield, removable locking multi-pin connector	2 tile support rails (for 2ft or 600mm tile spans), cutout template, paint shield, removable locking multi-pin connector	2 tile support rails (for 2ft or 600mm tile spans), cutout template, paint shield, removable locking multi-pin connector	2 tile support rails (for 2 ft or 600mm tile spans), cutout template, paint shield, removable locking multi-pin connector	2 tile support rails (for 2ft or 600mm tile spans), cutout template, paint shield, removable locking multi-pin connector

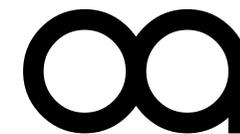
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Loudspeakers

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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

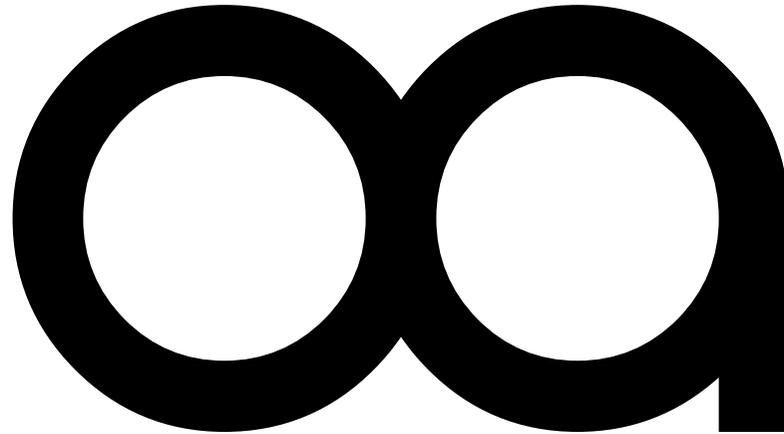
**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

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.

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. Protect the loudspeaker cable from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
10. Do not unplug the unit by pulling on the loudspeaker cable, use the plug.
11. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as 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.
12. 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.
13. Do not remove any covers, loosen any fixings or allow items to enter any aperture.
14. Ensure the loudspeaker is mounted with appropriately sized fixings of suitable load bearing capacity
15. Always ensure a secondary safety fixing is used where loudspeakers are mounted overhead.

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optimal-audio.co.uk

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