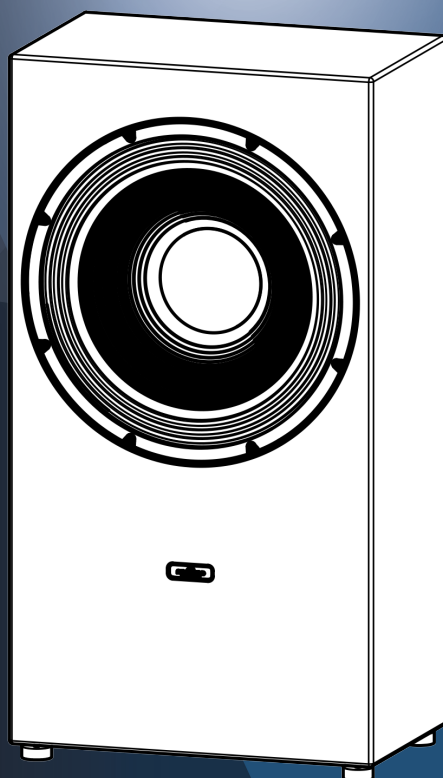


<ascendo
ELEVATE YOUR SOUND

**THE 21 SUB
PRO PASSIVE
SEALED**



OPERATION MANUAL

THE 21 SUB PRO PASSIVE SEALED

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IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Clean only with a dry cloth.
6. Install this apparatus in accordance with the manufacturer's instructions.
7. Do not install this apparatus near any heat sources such as radiators, heat registers, stoves or other apparatus.
8. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, or the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.

DISPOSAL

Correct disposal of this product (Waste Electrical & Electronic Equipment) This symbol means the product must not be discarded as household waste and should be delivered to an appropriate collection facility for recycling.

Proper disposal and recycling help protect natural resources, human health, and the environment. For more information on disposal and recycling of this product, contact your local municipality, disposal service, or the shop where you bought this product.

RoHS

This product is RoHS compliant. This product is in compliance with Directive 2011/65/EU, and its amendments, on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

REACH

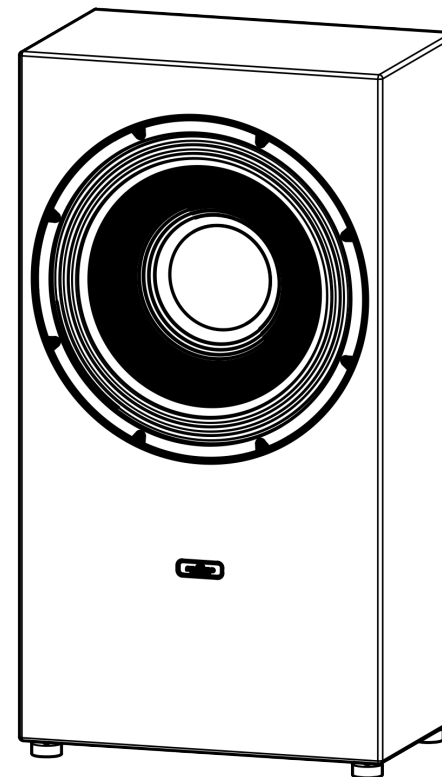
REACH (Regulation No 1907/2006) addresses the production and use of chemical substances and their potential impacts on human health and the environment. Article 33(1) of REACH Regulation requires suppliers to inform the recipients if an article contains more than 0.1 % (per weight per article) of any substance(s) on the Substances of Very High Concern (SVHC) Candidate List ('REACH candidate list'). At the time of release of this product, no substances of REACH candidate list are contained in a concentration of more than 0.1% per weight in this product.

THANK YOU FOR CHOOSING ASCENDO IMMERSIVE AUDIO.

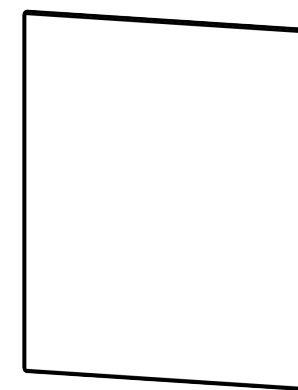
For more than 25 Years, ASCENDO has been involved in music reproduction. We are confident that the PRO product you have chosen will provide every note of enjoyment that you expect.

Please take a moment to register your product on our website at www.aia-cinema.com. This enables us to keep you posted on our latest advancements and helps us to better understand our customers and build products that meet their needs and expectations. All features and specifications are subject to change without notice.

PACKAGE CONTENTS



1 x Subwoofer



1 x Grille



1 x Quick Start Guide

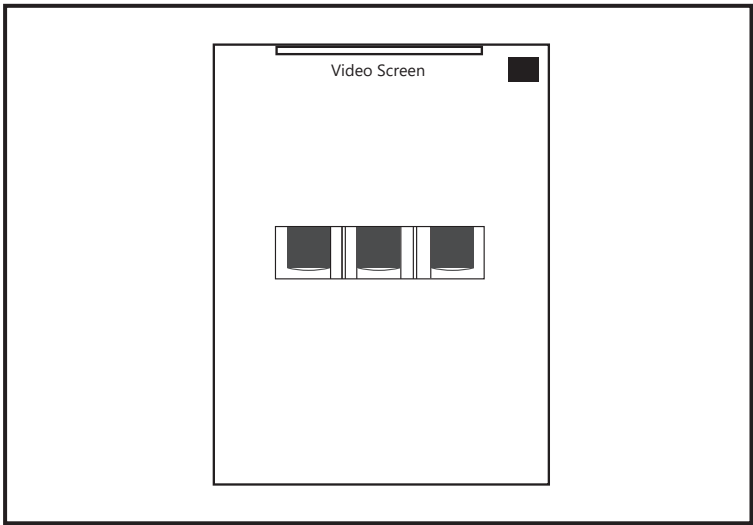
PLACEMENT

When using subwoofers within the limited confines of a typical home theatre room, the boundary reflections, standing waves, and resonant absorbers within the room will create peaks and dips in the bass response that can vary greatly depending on where the listeners are seated in the room. A listener located in one place may hear an overabundance of several bass frequencies created by a response peak at the location, while another listener only a few feet away may hear far less bass at those frequencies but have other peaking or dipping frequencies at that location.

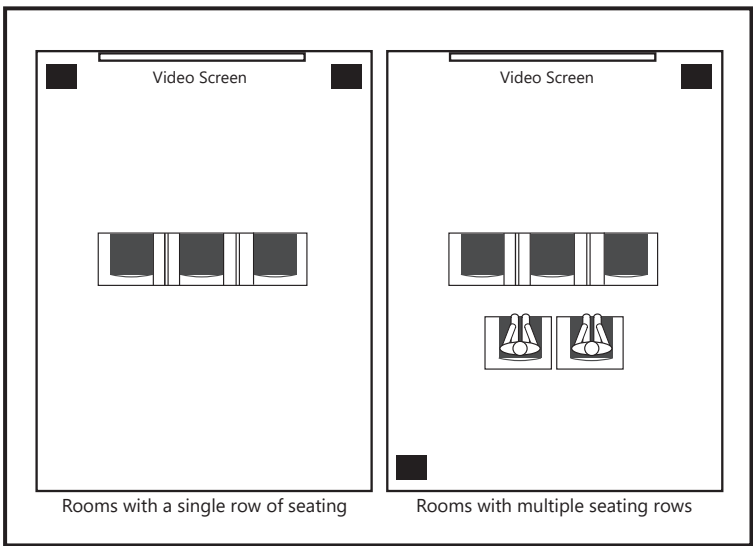
The locations of subwoofers within the room (along with the room’s dimensions) also have a profound effect on the creation of these bass response peaks and dips. Careful subwoofer placement alone cannot compensate for all bass response peaks and dips throughout a room, but careful subwoofer placement can eliminate or significantly reduce the largest response dips. It is important to reduce response peaks and dips throughout the room as much as possible via proper subwoofer placement because equalization cannot be used to compensate for large response dips, only peaks. For example, using equalization to restore a 13dB response dip re-quires that the subwoofer amplifier deliver 20 times the power at that frequency if it solves the problem at all, which it does not in most cases. This can quickly overdrive the subwoofer amplifier into clipping, which will significantly de-grade audio quality and reduce the overall out-put capability. In almost any room, placing the subwoofers in corners will produce the fewest large bass response dips and will also produce the largest bass response peaks. We strongly recommend that you install multiple subwoofers regardless of the room size.

A single subwoofer will result in the least consistent bass performance throughout the room. Using multiple subwoofers can reduce some room modes at the various listening locations, resulting in much more consistent low frequency throughout the listening area. It is often impossible to place a single subwoofer in a way that large response dips, which cannot be corrected via equalization, are not present. The use of two or more properly placed subwoofers almost always reduces or eliminates such response dips. Common placement formulas such as placing the subwoofers at ¼ points rarely work in practice. The best solution is to make high-resolution measurements from the primary listening area while experimenting with speaker placement. Placing a sub-woofer at the listening position and measuring it from the potential installation positions around the room – using acoustic reciprocity – can help speed finding the best position(s). Measurement at the best positions in this manner will produce the measurements with the fewest and smallest peaks and dips in the response.

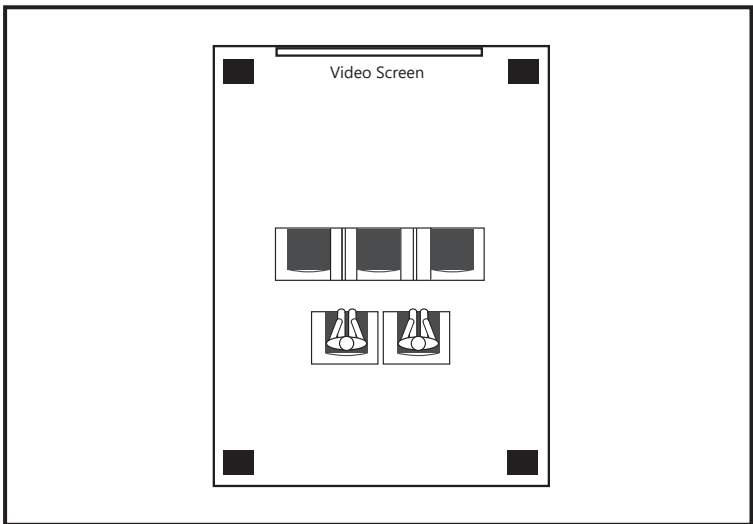
Single Subwoofer



Double Subwoofer



Four Subwoofers



CONNECTIONS

Speakers and electronics have corresponding (+) and (-) terminals. Most manufacturers of speakers and electronics, use red to denote the (+) terminal and black for the (-) terminal. It is important to connect both terminals identically: (+) on the speaker to (+) on the amplifier, and (-) on the speaker to (-) on the amplifier.

This connection ensures, that all speakers work in unison and make a forward movement if a positive signal is applied and move backward when a negative signal is applied.

Wiring “out of phase” results in thin sound, weak bass, and a poor stereo image. With the advent of multichannel sur-round sound systems, connecting all the speakers in your system with the correct polarity remains equally impor-tant to preserve the proper ambience and directionality of the program material.

If two *THE21* subwoofers are used, the wires for both speakers should be similar in length. If the bass response seems low, there may be a polarity problem between the two subwoofers, with the sound waves from the two subwoofers cancelling each other out. In this case check the correct polarity of all wiring including Speaker wires, XLR signal cables, DSP settings etc.

THE21 SUB PRO PASSIVE SEALED uses both (+) (+) and (-) (-) for its connection, please see image for possible connecting options. Both (+) (+) and (-) (-) are internally connected.

The (+) terminal of the dedicated amplifier channel must be connected to the (+) terminal(s) of the speaker as the (-) terminals of the amp need to be connected to the (-) terminal(s) of the speaker. In this wiring configuration, the amplifier will be presented with a nominal 8 Ohms speaker load.

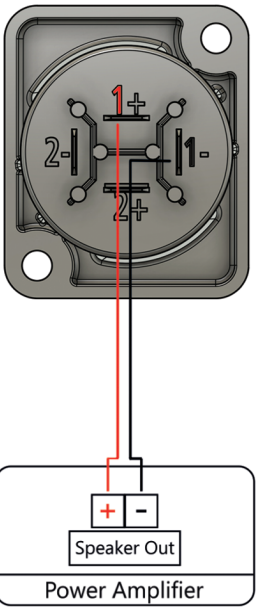
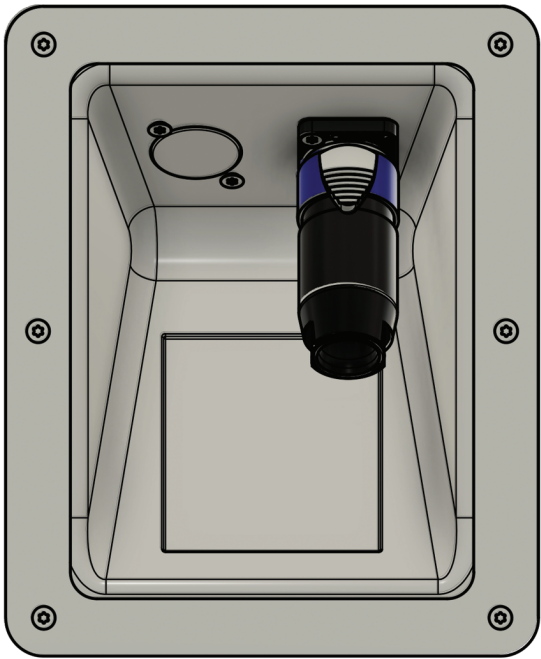
THE21 SUB PRO PASSIVE SEALED is specifically designed for use in conjunction with low noise amplifiers where the residual noise floor of the amplifier should be below 40µV. Connect your main receiver or processor’s output to the line-level input on your amplifier.

CONNECTING THE SPEAKERS TO AMPLIFICATION

To connect THE21 SUB PRO PASSIVE SEALED subwoofer to power amplifier(s) or receiver, use two-conductor insulated speaker wire. Wire length Recommended Size.
Up to 40 ft. (12m) 14-gauge
Up to 60 ft. (20m) 12-gauge

THE21 SUB PRO PASSIVE SEALED uses Neutrik speakON® connectors.

ASCENDO Passive Subwoofers: Wiring Diagram / Connection Options



CARING FOR YOUR PRODUCT

Wipe the cabinet with a clean, dry cloth to remove dust. A damp cloth may dull the cabinet’s finish. Do not use volatile liquids such as benzene, paint thinner or alcohol on the cabinet.

Do not spray insecticide near the cabinet.

To remove dust from the grille fabric, use a vacuum cleaner, soft brush and set to low suction.

Do not wash the grille in water, as water may fade the grille’s colour or make it uneven.

If the surface of the woofer cone becomes dusty you can carefully sweep it clean with a soft, dry calligraphy brush or paint brush or low air pressure. Do not use a damp cloth.

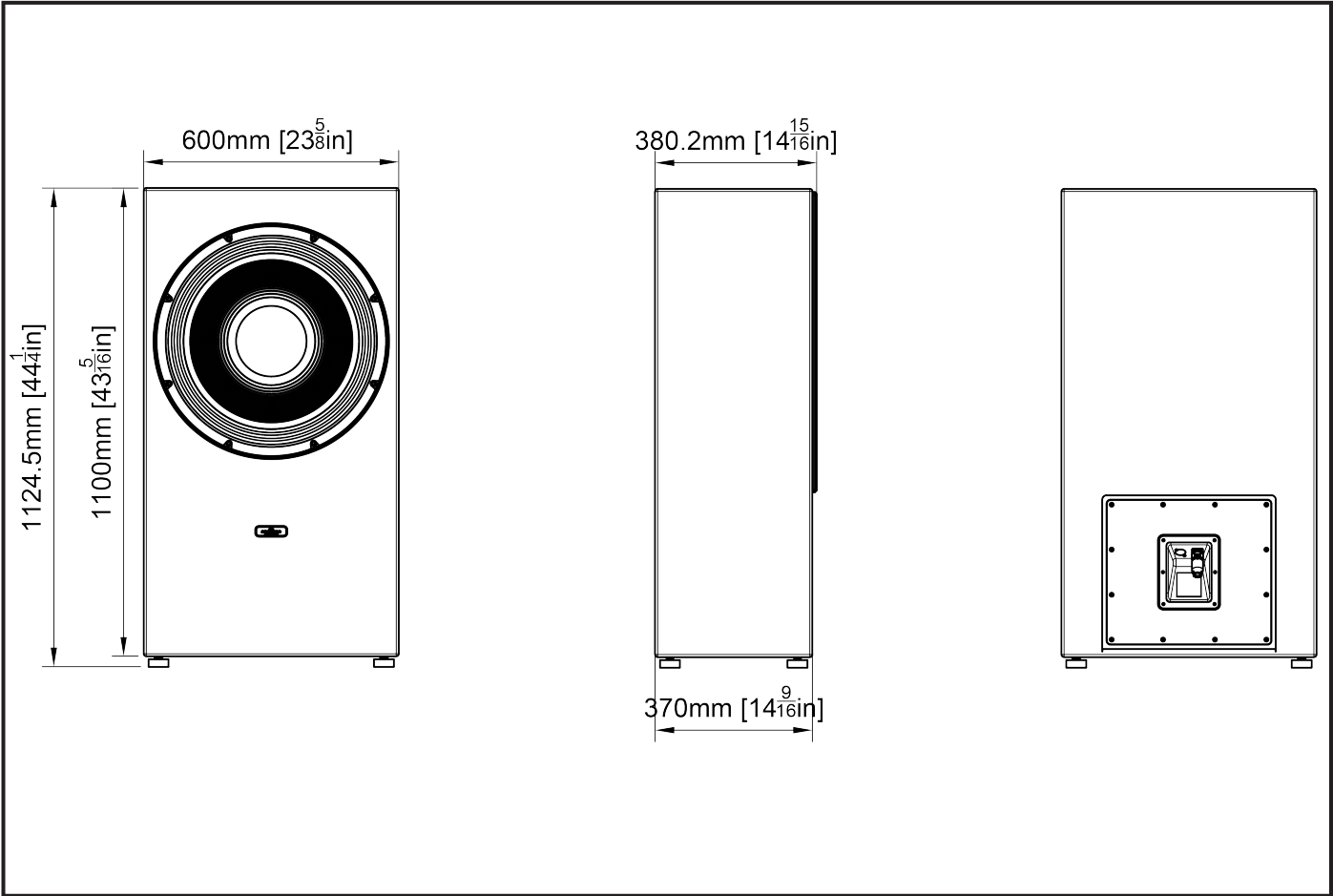
SPECIFICATIONS

Model	THE21 SUB PRO PASSIVE SEALED
Speaker type	21-inch forward-firing, dual-gap motor structure with 2 inner and 2 outer voice coils, neodymium motor
Xmax	17.5 mm excursion each direction (35 mm linear), voice coil remaining in homogeneous magnetic field, linear and lower distortion
Principle	Sealed
Passive Active	Passive
Recommended Amplifiers	1Ch DSP and 1CH amplifier are required. Min. recommended amplifier: 109 Vrms, 154 Vpk, 27,3 A; equivalent to 3000W@4Ω with correct RMS & peak limiter settings
Recommended ASCENDO Amplifiers	(With DSP-4D: AIA2-10K2 IS, AIA2-6004), DSP4-10K2, DSP4-20K2
SPL peak (Peak / half space 2pi)	Measured Data 139dB @ 63 Hz 121 dB @ 30 Hz
Frequency Range	Measured Data (Without DSP) 55 Hz - 500 Hz / -3 dB 28 Hz - 500 Hz / -12 dB
Power handling	4000W
Efficiency	91 dB / 1W/m 4 pi, 97 dB / 1W/m 2 pi
Impedance	4 Ω
Directivity Horizontal x vertical in deg°	360
Max Linear Air Volume Displacement	1,52 US. liq. gal. 5.76 L
Input Terminal	Neutrik Speakon
Dimensions (W/H/D) mm (Without grille)	600 1125 370 (Height without feet: 1100)
Dimensions (W/H/D) inch (Without grille)	23 5/8 44 5/16 14 9/16 (Height without feet: 43 5/16)
Packing Dimensions (W/H/D) mm	700 1250 500
Packing Dimensions (W/H/D) inch	27 9/16 49 3/16 19 11/16
Weight	112.44 lbs 51 kg
Gross Weight	132.28 lbs 60 kg
Enclosure	Internally braced MDF
Finish	Structural paint black

The THE21 SUB PRO PASSIVE SEALED is supplied with a front cover as standard.
Technical modifications subject to change without further notice.

DIMENSIONS

THE21 SUB PRO PASSIVE SEALED



DOCUMENTS RESOURCES

ASCENDO THE21 SUB PRO PASSIVE SEALED (pdf)





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