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User's manual

S218WP

NÍTiD

#purelynitid

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Safety Instructions

1. All safety instructions must be read before using this device.
2. Keep and follow these instructions
3. Heed all warnings
4. The exclamation mark in the triangle indicates internal components which if replaced can affect safety.
5. The lightning symbol within the triangle indicates the presence of dangerous uninsulated voltages.
6. Only clean the device with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install the device near heat sources such as radiators, heaters or other heat-emitting elements.
9. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus
10. The equipment must be repaired by qualified technical service personnel when:
 - A. The mains supply cable is damaged, or
 - B. Any object or liquid has damaged the device; or
 - C. The equipment does not function normally or correctly; or
 - D. The equipment has been exposed to the rain; or
 - E. The chassis is damaged
11. Disconnect the device in the case of electric storms or during long periods of disuse.
12. **WARNING** – To reduce the risk of fire or electric shock, do not expose this device to rain or moisture
13. The equipment shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the device.
14. For hanging and installation, use manufacturer recommended accessories only.

1. INTRODUCTION

1.1. General

Amate Audio would like to thank you for your confidence in our NÍTID Series. We suggest you to carefully read the following instructions in order to obtain the best results in performance.

1.2. Features and presentation

S218WP

- Passive subwoofer
- NL4MP Speakon input
- 4800 W program power
- Sensitivity 1 W / 1 m: 102 dB
- 2x 18" neodymium woofers with 4" voice coil
- Nominal impedance 4Ω

2. CONNECTIONS

2.1. Connection description

A) SPEAKON: The S218WP has two NL4MP Speakon terminals. The one with the dummy plug **cannot** be used for a connection in a parallel system. **Use only** the terminal that is not protected with the dummy plug (A). Terminal Pins +1/-1 must be always used, disregarding the +2/-2, which are not internally connected. Respect always the polarity +/-.

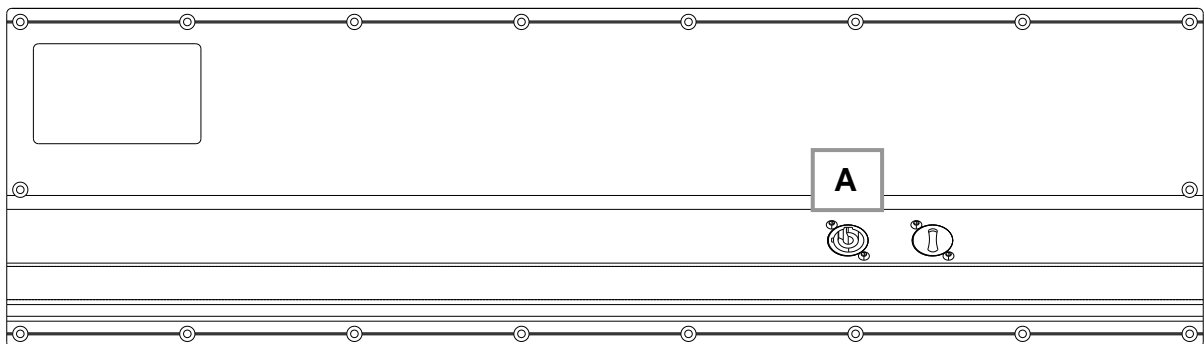


Fig. 1. S218WP connectors

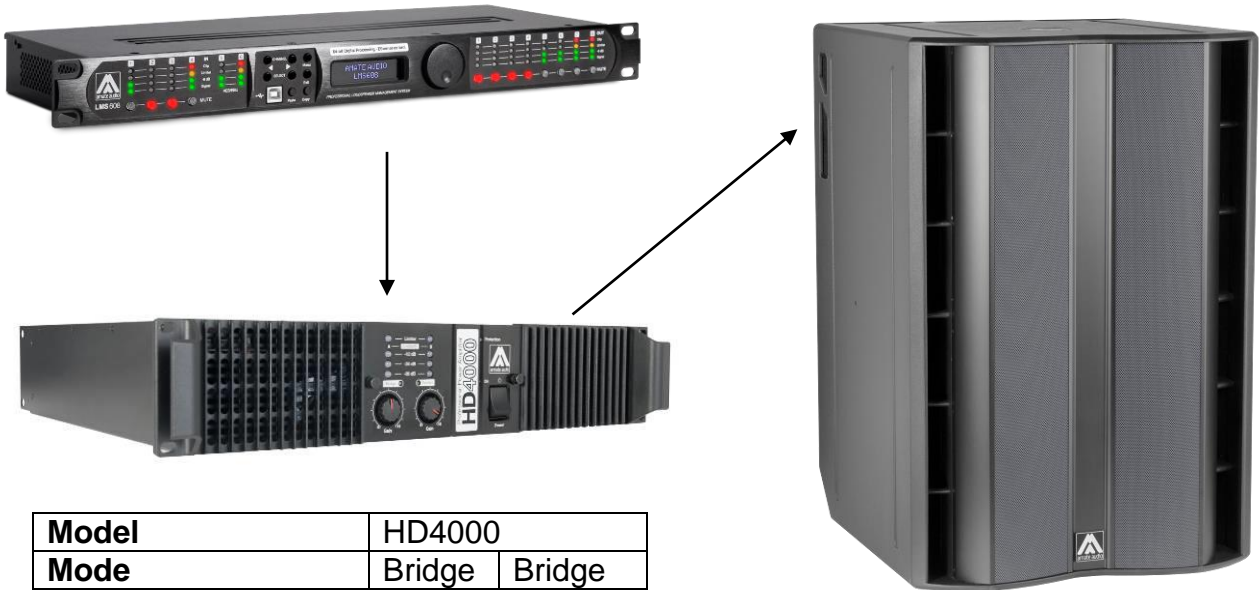


It is strongly recommended to use a two-conductor high quality wire, non-shielded and two-coloured. We recommend using a minimum section of 4 mm² for each conductor. Avoid long wire distances as they induce to important power and quality losses.

2.2. Recommended set-up for S218WP passive subwoofers

Model	LMS206/608
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Model	S218WP
Impedance	4Ω



Model	HD4000	
Mode	Bridge	Bridge
Impedance	4Ω	8Ω
Program power	4200W	2400W

One unit of HD4000 (in bridge mode) can feed up one unit of S218WP.

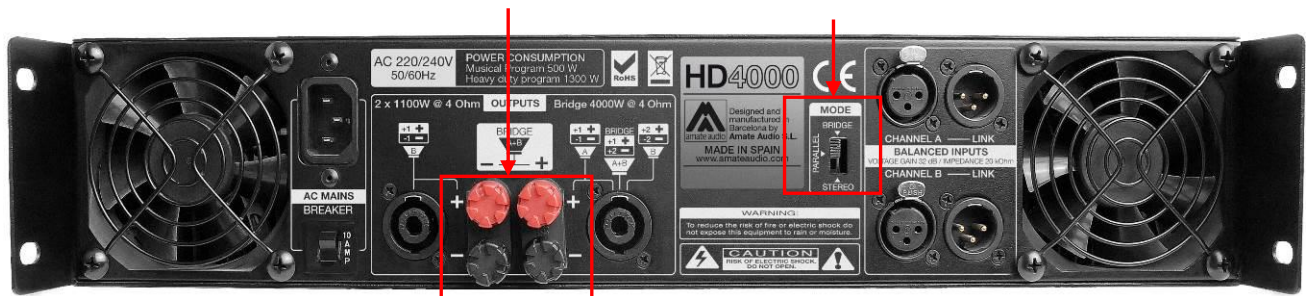


Fig. 2. S218WP configuration

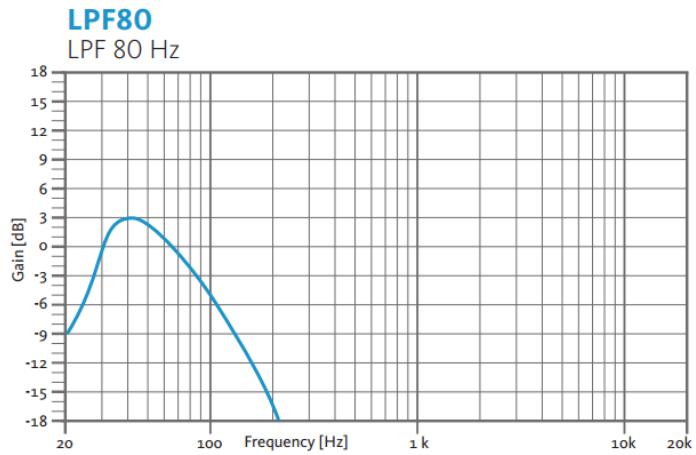
2.3. Recommended presets for S218WP

The S218WP can be used with an external LMS206 /LMS608 (digital signal processor).

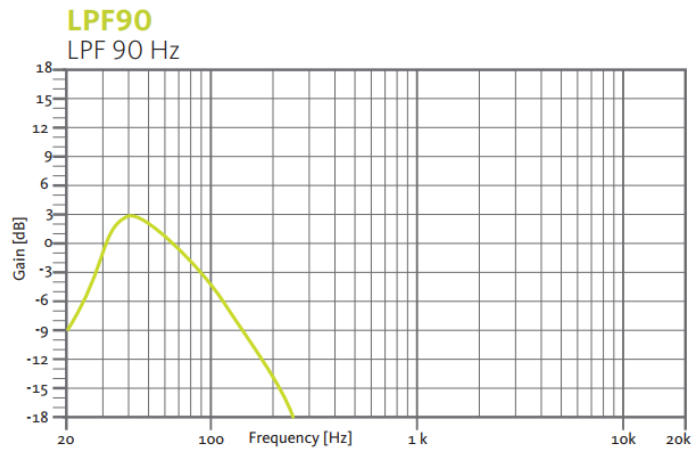
ATTENTION: When the S218WP is used in conjunction with the Full-range NÍTID S systems in XOVER HPF90 preset, the S218WP must operate in **positive polarity**.

When the S218WP is used in conjunction with the Full-range NÍTID S systems in FLAT, SPEECH, MONITOR presets, the S218WP must operate in **negative polarity**.

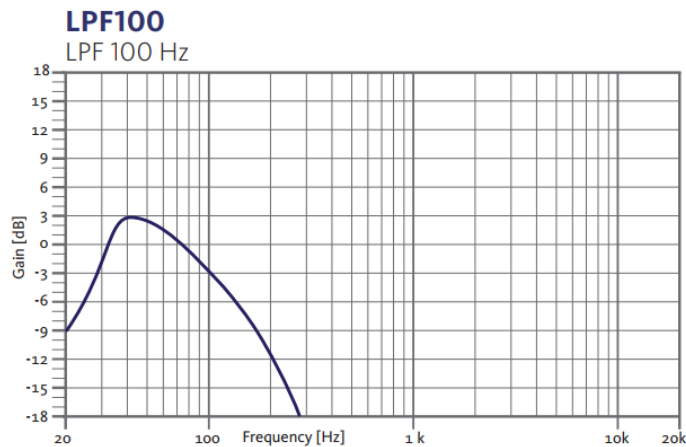
LPF80
80 Hz low pass filter



LPF90
90 Hz low pass filter



LPF100
100 Hz low pass filter



CARD80/90/100
Cardioid polar pattern, with processing, delay and inverse polarity

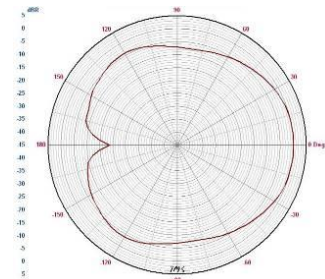


Fig. 3. Recommended PRESETS for S218WP

3. MOUNTING AND PLACEMENT

For a proper installation of the acoustic cabinet systems, it is strongly recommended to carefully read the following advices.

3.1. S218WP with full-range systems

The S218WP incorporates a M20 base-plate on its upper side for the attachment of a standard 35mm diameter bar.

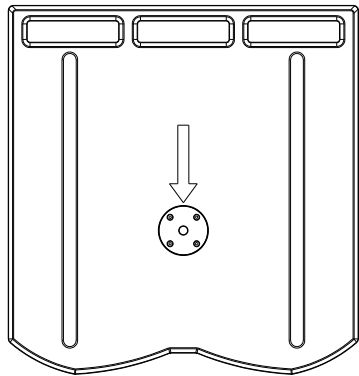
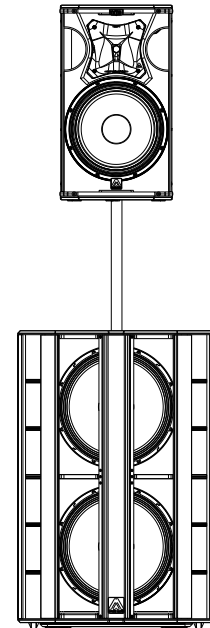
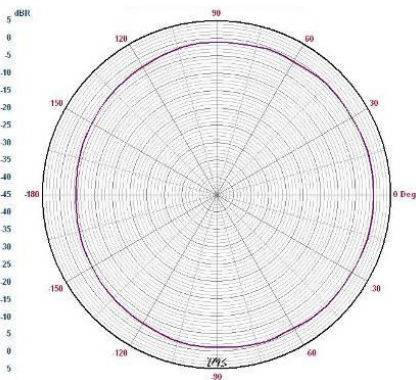


Fig. 4. S218WP socket



4. CARDIOID SUBWOOFERS



The S218WP enables the combination of three or multiple of three subwoofer cabinets in an array to provide exceptional directivity at low frequencies. To get the correct set-up parameters, please contact export@amateaudio.com. High directivity at low frequencies has two main effects on the sound field: firstly, the low frequency level behind the subwoofer cabinets is greatly reduced; secondly, in closed venues the diffuse sound field at low frequencies is reduced so the low frequency reproduction is much more precise.

Fig. 5. Traditional polar pattern of a subwoofer at 40Hz

The typical operating range of a traditional subwoofer tends to be like a monopole, i.e. tends to radiate with the same energy in all directions. This behaviour implies that the control of radiation at low frequencies is very difficult because the wavelengths are very large compared to the size of the source (8.5 m at 40Hz).

To increase the directivity at low frequencies we must transform the omnidirectional performance into a cardioid performance. This can only be achieved by various sources, arranged in a certain position, to which we apply a specific phase, filtering and delay. That is, we need to reproduce two signals with the same frequency and similar amplitude, which will have a difference in phase of approximately 180° at a certain point of the sound field. If the phases and delays are well calculated, the result is a system, in which we cancel the energy of the back and not the one of the front.

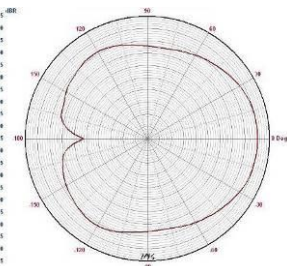


Fig. 6. Cardioid pattern

4.1. The CARDIOID presets

The S218WP can generate an uncompromised cardioid behaviour when used in conjunction with an external Amate Audio processor and their correct set-up parameters. In its minimum and standard configuration a cardioid setup consists of a horizontal line of three subwoofer cabinets.

Only one subwoofer is needed to compensate for the energy of the other two radiating to the front. Then, the cabinet facing to the back (to the stage) should be located in the centre of the line.

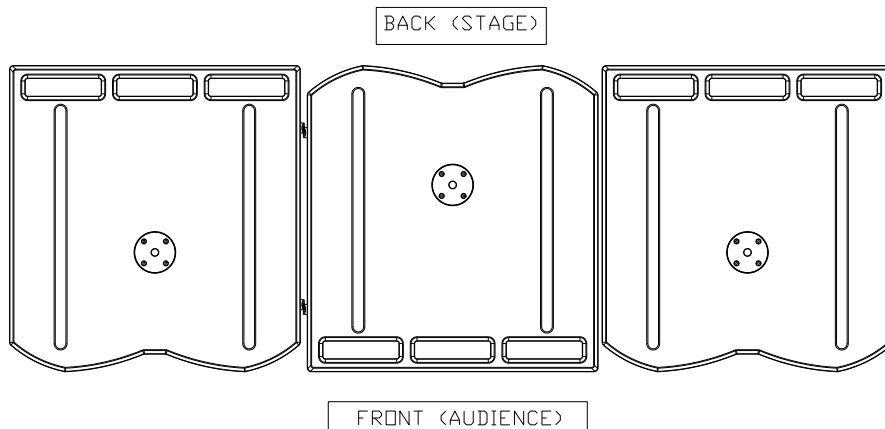


Fig. 7. Cardioid configuration for S218WP



The cardioid preset must only be applied to the rear facing subwoofers (BACK STAGE). The front facing subwoofers (FRONT AUDIENCE) must use the corresponding front-facing preset, as shown in the table below:

S218WP Preset (BACK STAGE)	S218WP Preset (FRONT AUDIENCE)	Box model
CARD80 STANDARD	LPF80 STANDARD	Generic, HPF 80 Hz
CARD90 STANDARD	LPF90 STANDARD	Generic, HPF 90 Hz
CARD100 STANDARD	LPF100 STANDARD	Generic, HPF 100 Hz

Fig. 8. Correspondence of rear and front presets for cardioid applications

When placing the subwoofers in a cardioid configuration keep a distance to walls of at least 60 cm in order not to affect the radiation of the central reversed cabinet.

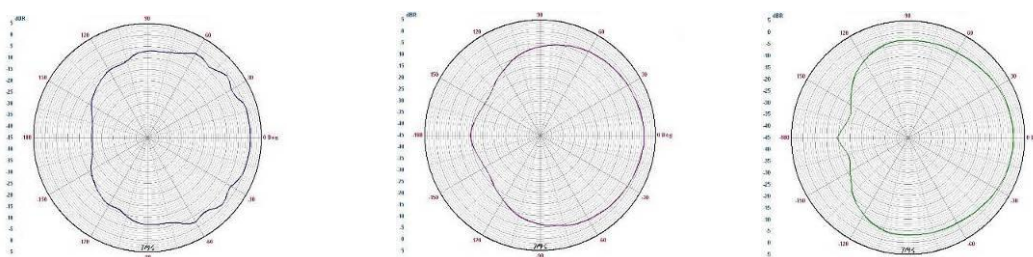


Fig. 9. Back energy rejection at 40 Hz / 50 Hz / 63 Hz

5. TECHNICAL FEATURES

S218WP	
Impedance	
Nominal	4 Ω
Power	
R.m.s	2400 W
Program	4800 W
Connectors	1 x Speakon NL4MP input
Audio Performance	
Frequency response (-10 dB usable bandwidth) with external DSP	30 Hz – 130 Hz [LPF100]
SPL (1W / 1m)	102 dB
Nominal directivity (-6dB)	Omnidirectional
Components	
LF	2 x 18" neodymium woofers (4" voice coil)
Cabinet	
Type	Bass-reflex
Height	1116 mm
Width	750 mm
Depth	780 mm
Weight (net)	102 Kg
Material	Multilayer birch plywood, 2 mm powder coated steel front grilles with black acoustic mesh
Finish	Hi-resistance black Polyurea coating

Note: Specifications subjected to change without prior notice.



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The **NÍTID** loudspeaker systems have been designed,
engineered and manufactured in Barcelona – SPAIN
by

Amate Audio S.L.

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