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User's manual

S18WP

NÍTID

#purelynitid

April 2023

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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

S18WP

- Passive subwoofer
- NL4MP Speakon input & parallel output
- 2400 W program power
- Sensitivity 1 W / 1 m: 98 dB
- 18" woofer with 4" voice coil
- Nominal impedance 8Ω

2. CONNECTIONS

2.1. Connection description

A) SPEAKON: The S18WP uses two NL4MP Speakon terminals and is duly prepared for a perfect connection in a parallel system. Terminal Pins +1/-1 must be always used, disregarding the +2/-2 which are not internally connected. Respect always the polarity +/-.

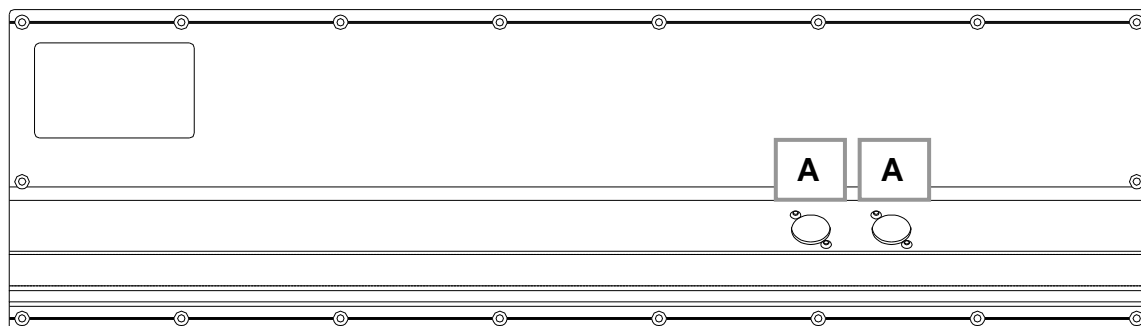


Fig. 1. S18WP connectors



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 S18WP passive subwoofers

Model	LMS206/608
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Model	S18WP
Impedance	8Ω



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

Model	S18WP
Impedance	8Ω

One unit of HD4000 (in bridge mode) can feed up to two units of S18WP.

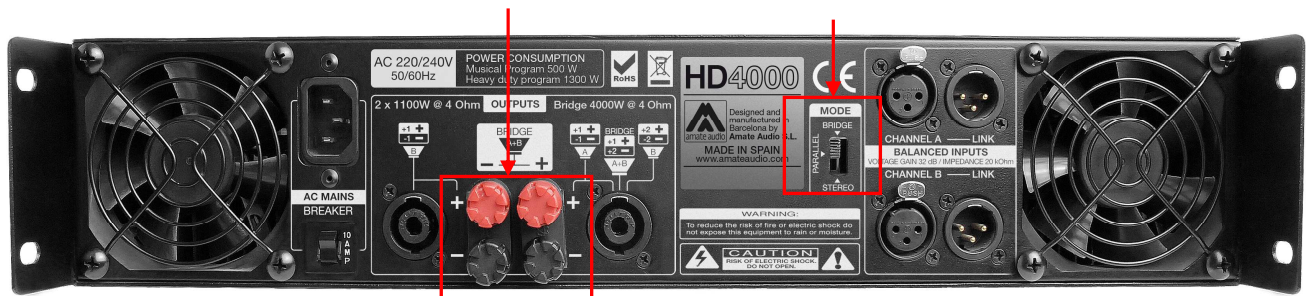


Fig. 2. S18WP configuration

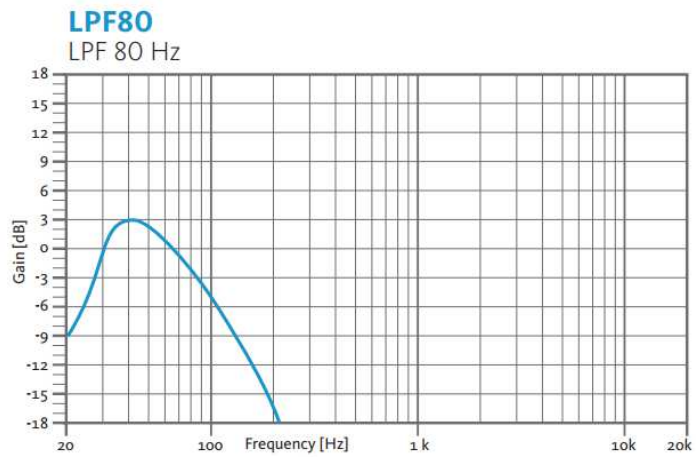
2.3. Recommended presets for S18WP

The S18WP can be used with an external LMS206 /LMS608 (digital signal processor).

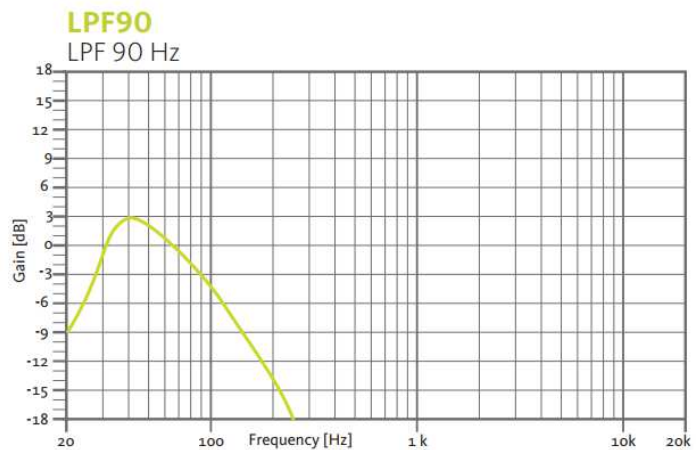
ATTENTION: When the S18WP is used in conjunction with the Full-range NÍTID S systems in XOVER HPF90 preset, the S18WP must operate in **positive polarity**.

When the S18WP is used in conjunction with the Full-range NÍTID S systems in FLAT, SPEECH, MONITOR presets, the S18WP must operate in **negative polarity**.

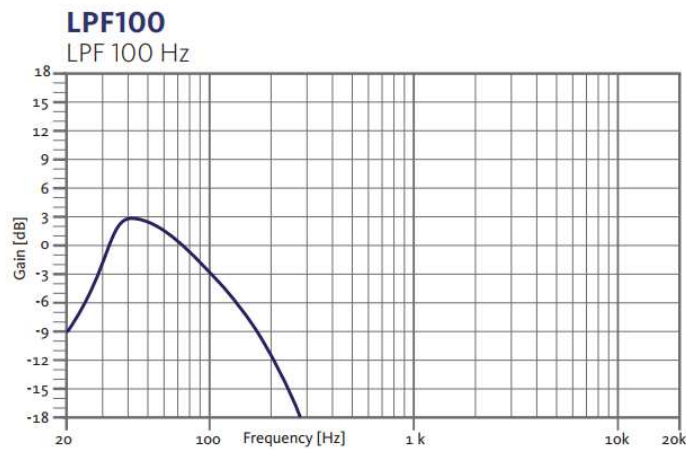
LPF80
80 Hz low pass filter



LPF90
90 Hz low pass filter



LPF100
100 Hz low pass filter



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

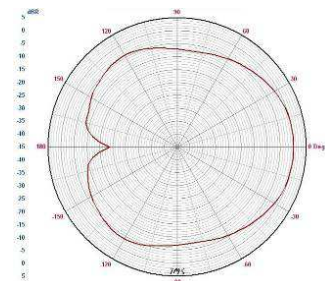


Fig. 3. Recommended PRESETS for S18WP

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. S18WP with full-range systems

The S18WP incorporates a M20 base-plate on its upper side for the attachment of a standard 35mm diameter bar.

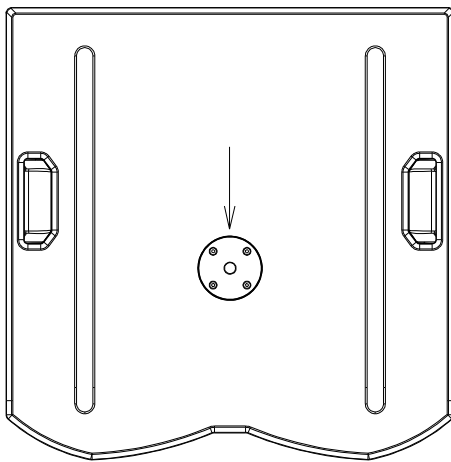
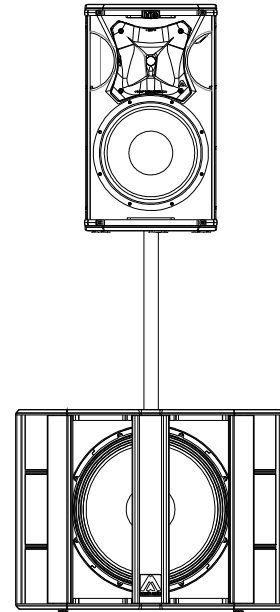


Fig. 4. S18WP socket



3.2. S18WP flying

Flying a NÍTID system is easy, fast and secure. To perform any operations related to flying the systems, read the present document, and act on the warnings and advice given.

Only experienced installers with adequate knowledge of the system and local safety regulations should fly speaker cabinets.

It is the user's responsibility to ensure that the systems to be flown and the flying accessories (such as chains, eyebolts, lock pins...) comply with state and local regulations. They should be regularly inspected and replaced if in doubt.

When flying enclosures from ceiling support structures, extreme care should be taken to assure the load bearing capabilities of the structures. **Do not fly systems from unsafe structures.**

All flying accessories that are not supplied by Amate Audio are the user's responsibility. Use at your own risk.

Use the KRW118 accessory and the BRWX bumper to fly the system. Refer to "KRW118 instructions manual" for more information.

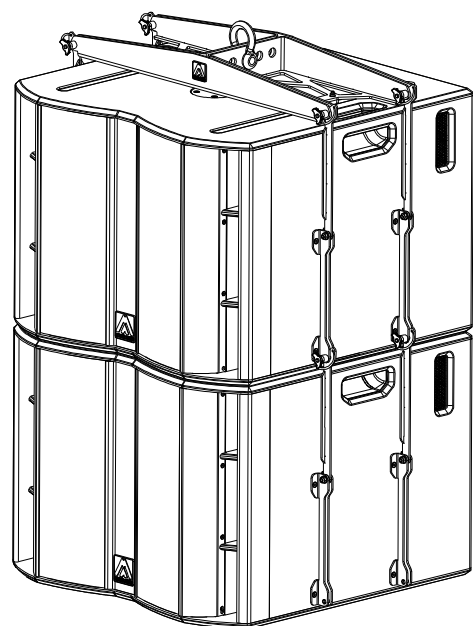
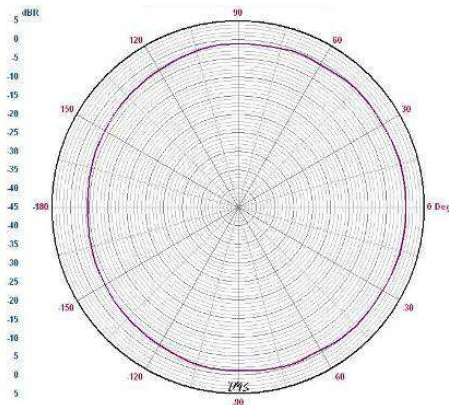


Fig. 5. S18WP with KRW118 flying

4. CARDIOID SUBWOOFERS



The S18WP 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. 6. 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.

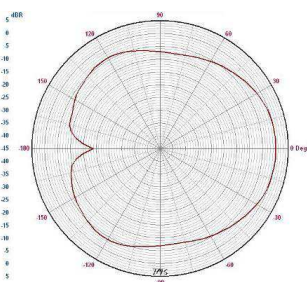


Fig. 7. Cardioid pattern

4.1. The CARDIOID presets

The S18WP 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 stack of three subwoofer cabinets or an 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 column or line.

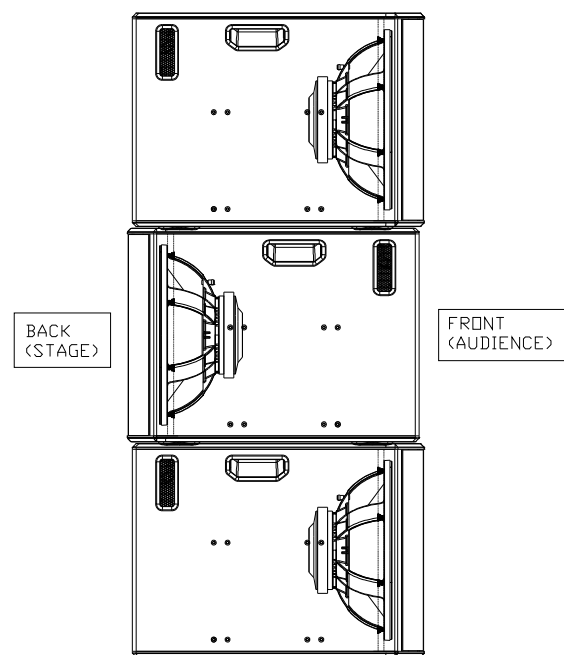


Fig. 8. Cardioid configuration for S18WP (stack)

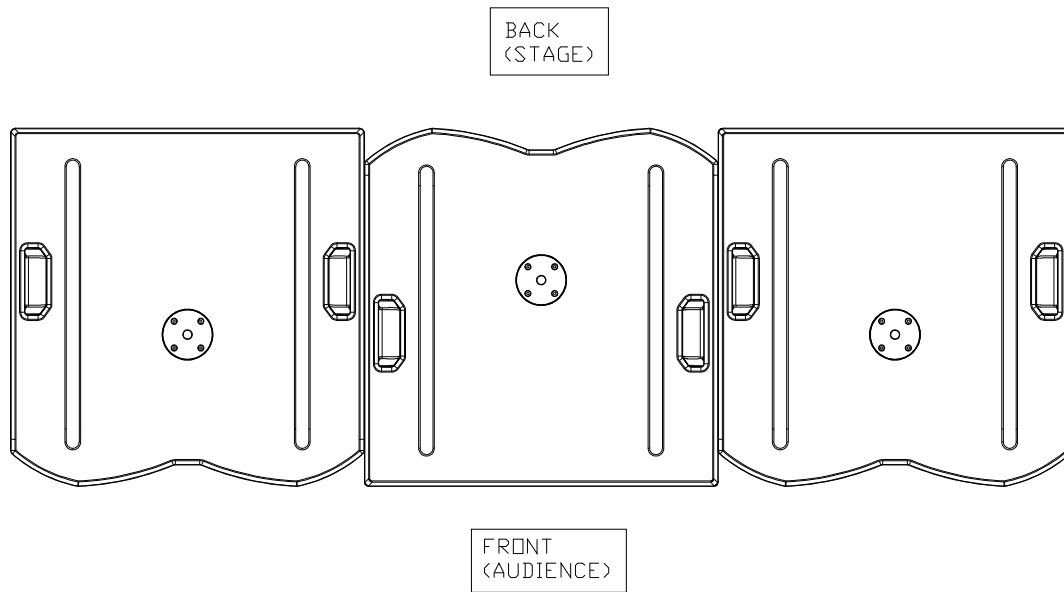


Fig. 9. Cardioid configuration for S18WP (horizontal line)



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:

S18WP Preset (BACK STAGE)	S18WP 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. 10. 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.

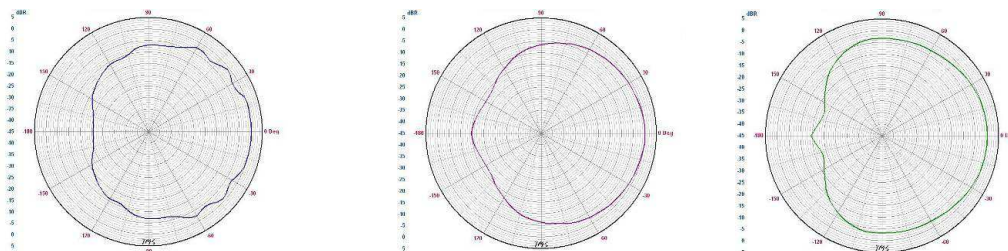


Fig. 11. Back energy rejection at 40 Hz / 50 Hz / 63 Hz

5. TECHNICAL FEATURES

S18WP	
Impedance	
Nominal	8 Ω
Power	
R.m.s	1200 W
Program	2400 W
Connectors	2 x Speakon NL4MP input & link
Audio Performance	
Frequency response (-10 dB usable bandwidth) with external DSP	33 Hz – 140 Hz [LPF100]
SPL (1W / 1m)	98 dB
Nominal directivity (-6dB)	Omnidirectional
Components	
LF	1 x 18" woofer (4" voice coil)
Cabinet	
Type	Bass-reflex
Height	555 mm
Width	740 mm
Depth	748 mm
Weight (net)	58 Kg
Material	Multilayer birch plywood
Finish	Hi-resistance black matt Polyurea coating. 2 mm steel front grilles with black acoustic mesh.

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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