



*Great sound
from Barcelona
since 1972*

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User's manual

XW218

XCELLENCE

July 2023

Amate Audio S.L.

EXPORT & CUSTOMER SERVICE
Perpinyà, 25 · Polígon Industrial Nord
08226 Terrassa · Barcelona – SPAIN
T. +34 93 735 65 65
export@amateaudio.com

R&D, FACTORY AND MANAGEMENT
Violinista Vellsolà, 18
08222 Terrassa · Barcelona – SPAIN
T. +34 93 736 23 90
info@amateaudio.com

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 product information

Amate Audio thanks you for the trust placed in our Xcellence loudspeaker systems. The Xcellence series combines the convenience of a self-powered system and the flexibility of the DSP (digital system processing) for cabinet control. More than 45 years' experience in amplifier and acoustic cabinet design using the highest technology and components come together to give you a product ideal for a multitude of applications, especially those which require high levels of sound pressure and a control of vertical coverage. Stadiums, theatres or big events will become the perfect places for their use. We suggest you read the following information with attention, assured that it will be of maximum use in helping you to achieve the best results and optimum performance.

1.2 Subwoofer arrays

A subwoofer array consists in a set of two or more subwoofers with the same target as a Line-Array: Achieve a great Sound Pressure Level (SPL) with a maximum coverage preventing irregular SPL distribution.

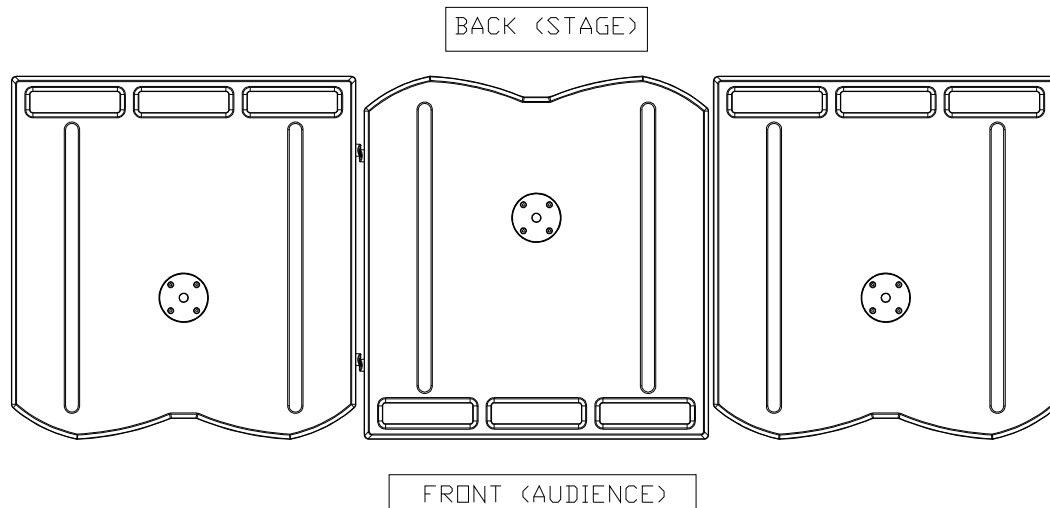


Fig.1. XW218 cardioid subwoofer array

The emplacement of the subwoofers is critical in applications where we have two or more of them. Low frequencies wavelength are longer so the chance of them to interact negatively increases. In this scenario, the performance of our subwoofer array would be heavily downgraded.

For example for a sound wave of 100 Hz the wavelength is:

$$\lambda = \frac{c}{f} = \frac{340}{100} = 3.4 \text{ meters}$$

If we place two subwoofers at less of 1.7 meters (Half of λ) the sound waves of 100 Hz corresponding of two different subwoofers will enter in the same period T/2 with a

nearly equal SPL. In this scenario, for this specific frequency, both of them will work as one same subwoofer with increased performance.

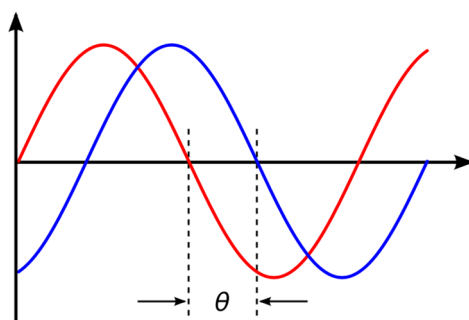


Fig.2. Phase difference θ between soundwaves of different sources

We can illustrate this phenomenon looking at the Figure 2. The strokes represent different subwoofers in different colours. Vertical y-axis is the displacement of sound pressure and x-axis is the time when the sound waves reach a specific spatial point. Phase difference is the Greek letter theta θ . When the phase difference is low, the peak pressure of the two strokes match. This causes a positive addition. When the phase difference is $T/4$, the valley of blue stroke matches the peak of red stroke. This causes negative addition and a theoretical absence of sound.

The closer the distance between subwoofers, the more chances we can get a positive addition. The more sensible frequencies of the emplacement of the subwoofers are those closer to the crossover frequency. That is why we advise against emplacing the subwoofers beneath the line-array towers in the typical L-R sound system. More information is available in our Recommended Configurations guide.

With a good sound design, we can take profit of the previous phenomenon for creating a subwoofer array, which increase the performance of our sound system. Also for preventing, the soundwaves to be emitted in certain areas of interest (E.g. the Stage). Knowing the sound speed, we can work in both the time and spatial plane, emplacing the subwoofers in reverse direction to invert the phase in order to create a *cardioid* subwoofer array. In section 3.3, we talk further about the cardioid configurations.

All this process of subwoofer array sound design could be very time consuming. In Amate Audio, we worked this out to offer an accessible presets, factory available inside our Xcellence XW218.

1.3 Features and presentation

XW218

- Self-powered subwoofer
- XLR electronically balanced input & XLR parallel link
- AC PowerCon input & link
- EtherCon RJ45 input & link
- 1 Gbps Ethernet connectivity with Dante™ audio networking.
- 5000W class D amplifier
- 24-bit AD/DA converters with 112 dB dynamic range, 48 kHz sampling rate
- DSP Controls (presets, parametric EQs, delay, mute, volume and limiter)
- Amplifier self-diagnostics: input level, temperature, limiter active
- Overvoltage protection (>250V-400V)
- Ethernet connectivity
- 2x 18" neodymium woofers with 4" voice coil

2 XW218 FEATURES

The XW218 cabinet is ideal for bass reinforcement. It includes 5000W amplification for the woofer and digital signal control by DSP. The manufacturer presets make it easy, flexible and user-friendly.

2.1 Technical description

The XW218 cabinet comes with DSP control, a direct radiation transducer and acoustic bass reflex cabinet. As a subwoofer system, its usable bandwidth is 25Hz-130Hz (-10 dB). It has 5000W continuous amplification, thermal protection, output short circuit protection, independent peak and RMS power limiters, and protection against overvoltage. The DSP includes several presets which can be selected either accessing the cabinet's rear control screen or via the computer with Ethernet connection.

The XW218 cabinet is connected using the XLR balanced connector or via Dante™ audio networking, using the RJ45 connectors. Mains supply is through PowerCon. It is built in birch plywood, which has a high resistance to vibrations and humidity with black Polyurea paint coating. The front face is protected by two 2 mm thick steel grilles with acoustically transparent grey cloth. It includes an in-built back handle and two wheels for an easy and comfortable transport.

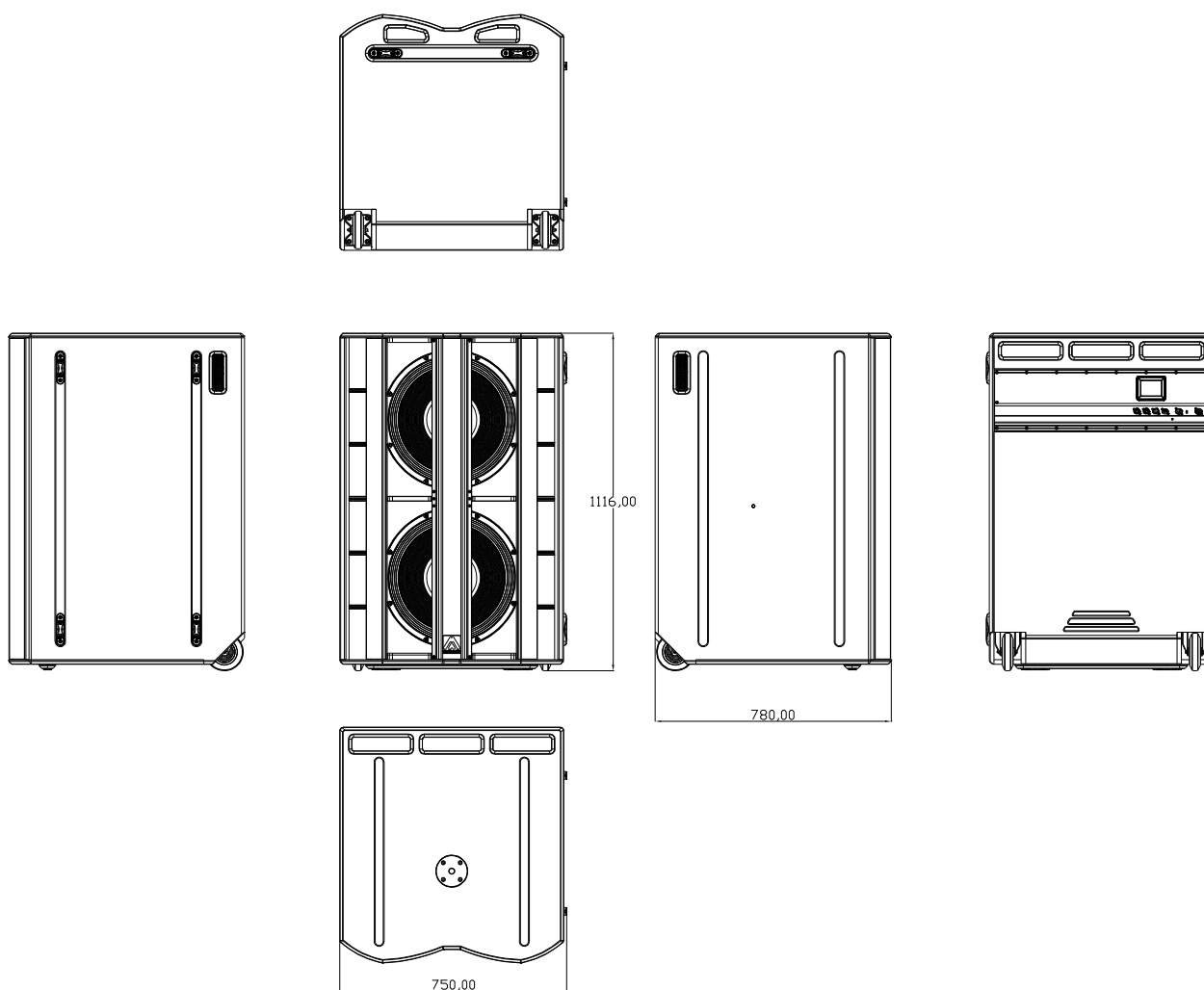


Fig.3. XW218 external dimensions

3 PRESETS

The XW218 includes several manufacturer presets for different types of application. The DSP system can also store up to 25 other presets, depending on user requirements

3.1 As extension on floor for X212AFD

The XW218 provides an extension of the bandwidth in the low end for the Xcellence Line Array system X212AFD, down to 25 Hz. The overall system operates over the nominal bandwidth 25 Hz – 18 kHz, -10dB.

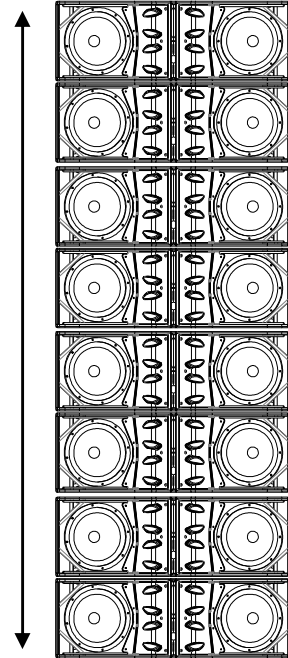
This extension can be done at two different crossover points: 60Hz or 80Hz. Please note that depending on the crossover point used in the subwoofer, the corresponding preset must be selected in X212AFD.

3.1.1 X212AFD as a line source with XW218 extension on floor and upper frequency limit of the subwoofer at 60 Hz

The XW218 provides an extension of the bandwidth in the low end, down to 25 Hz. The system operates over the nominal bandwidth 25 Hz – 18 kHz, -10dB.

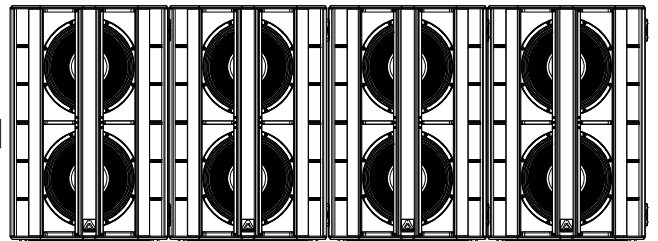
Model: X212AFD
Preset: [HPF60 FLAT]

[HPF60 FLAT]



Model: XW218
Preset: [LPF60 X212]

[LPF60 X212]



The minimum number of cabinets to be used as a line source system is 6 cabinets. We do not recommended to use less than 6 cabinets per side. The optimum number of cabinets per side would be from 8-9 cabinets to up.



Place the subwoofers side by side. If not possible, the maximum distance between two adjacent acoustic centres must be 2.8m when the upper frequency limit of the subwoofer is at 60 Hz.



SYSTEM ALIGNMENT

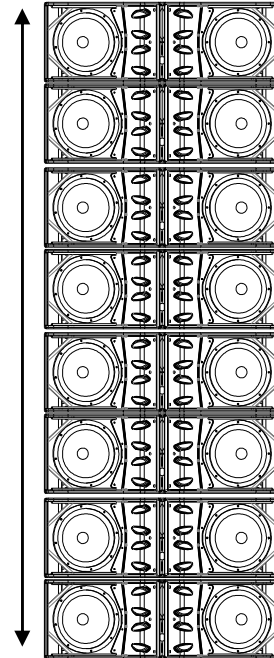
The system is pre-aligned from the factory. Do not forget to add the geometric delay depending on the configuration used.

3.1.2 X212AFD as a line source with XW218 extension on floor and upper frequency limit of the subwoofer at 80 Hz

The XW218 provides an extension of the bandwidth in the low end, down to 25 Hz. The system operates over the nominal bandwidth 25 Hz – 18 kHz, -10dB.

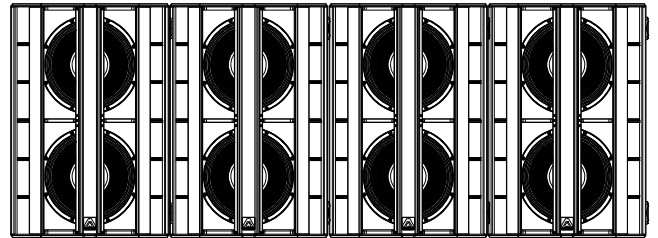
Model: X212AFD
Preset: [HPF80 FLAT]

[HPF80 FLAT]



Model: XW218
Preset: [LPF80 X212]

[LPF80 X212]



The minimum number of cabinets to be used as a line source system is 6 cabinets. We do not recommended to use less than 6 cabinets per side. The optimum number of cabinets per side would be from 8-9 cabinets to up.



Place the subwoofers side by side. If not possible, the maximum distance between two adjacent acoustic centres must be 2.1m when the upper frequency limit of the subwoofer is at 80 Hz.

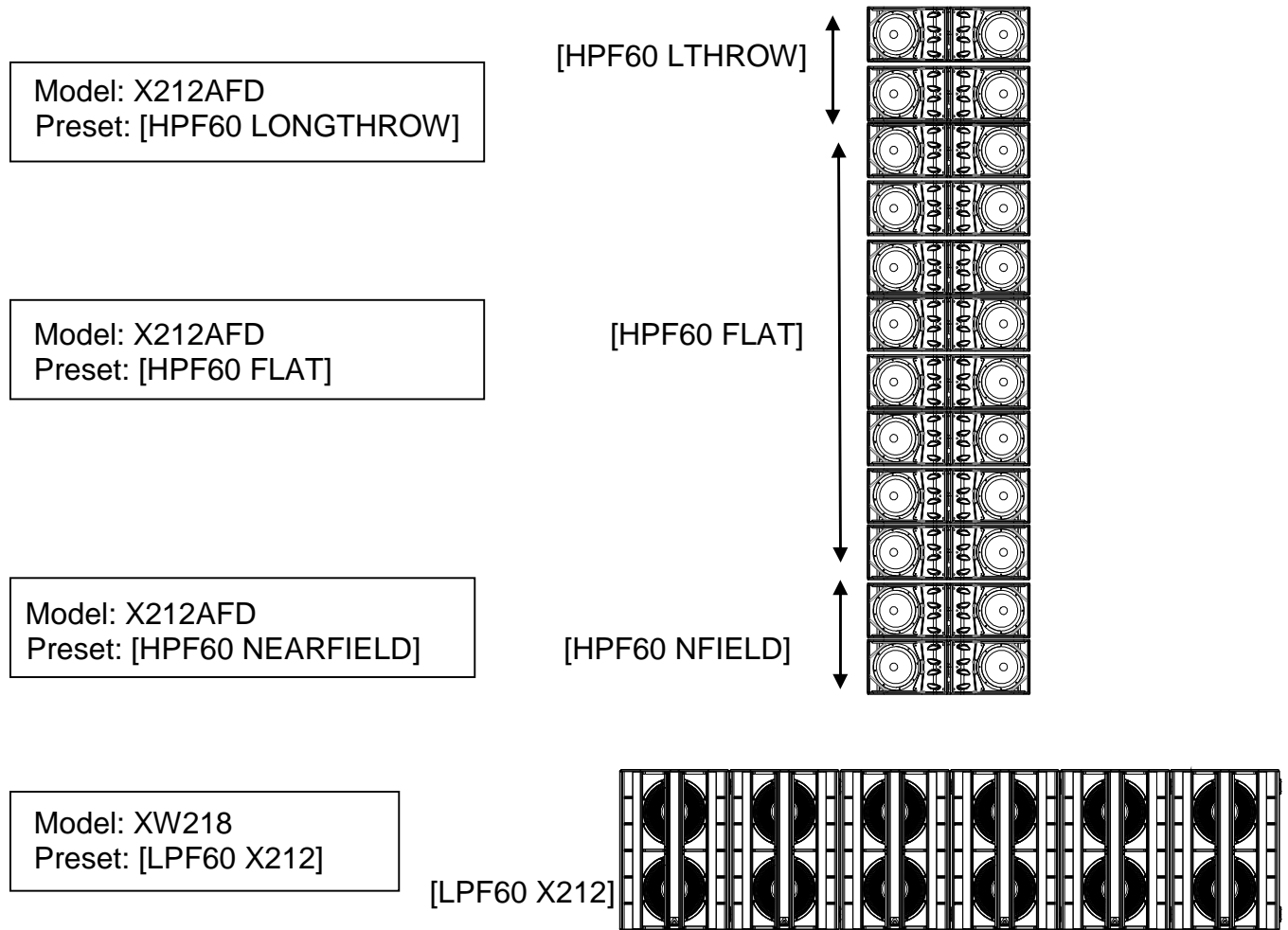



SYSTEM ALIGNMENT


The system is pre-aligned from the factory. Do not forget to add the geometric delay depending on the configuration used.


3.1.3 X212AFD as a line source (including NearField and Longthrow cabinets) with XW218 extension on floor and upper frequency limit of the subwoofer at 60 Hz.

The XW218 provides an extension of the bandwidth in the low end, down to 25 Hz. The system operates over the nominal bandwidth 25 Hz – 18 kHz, -10dB.



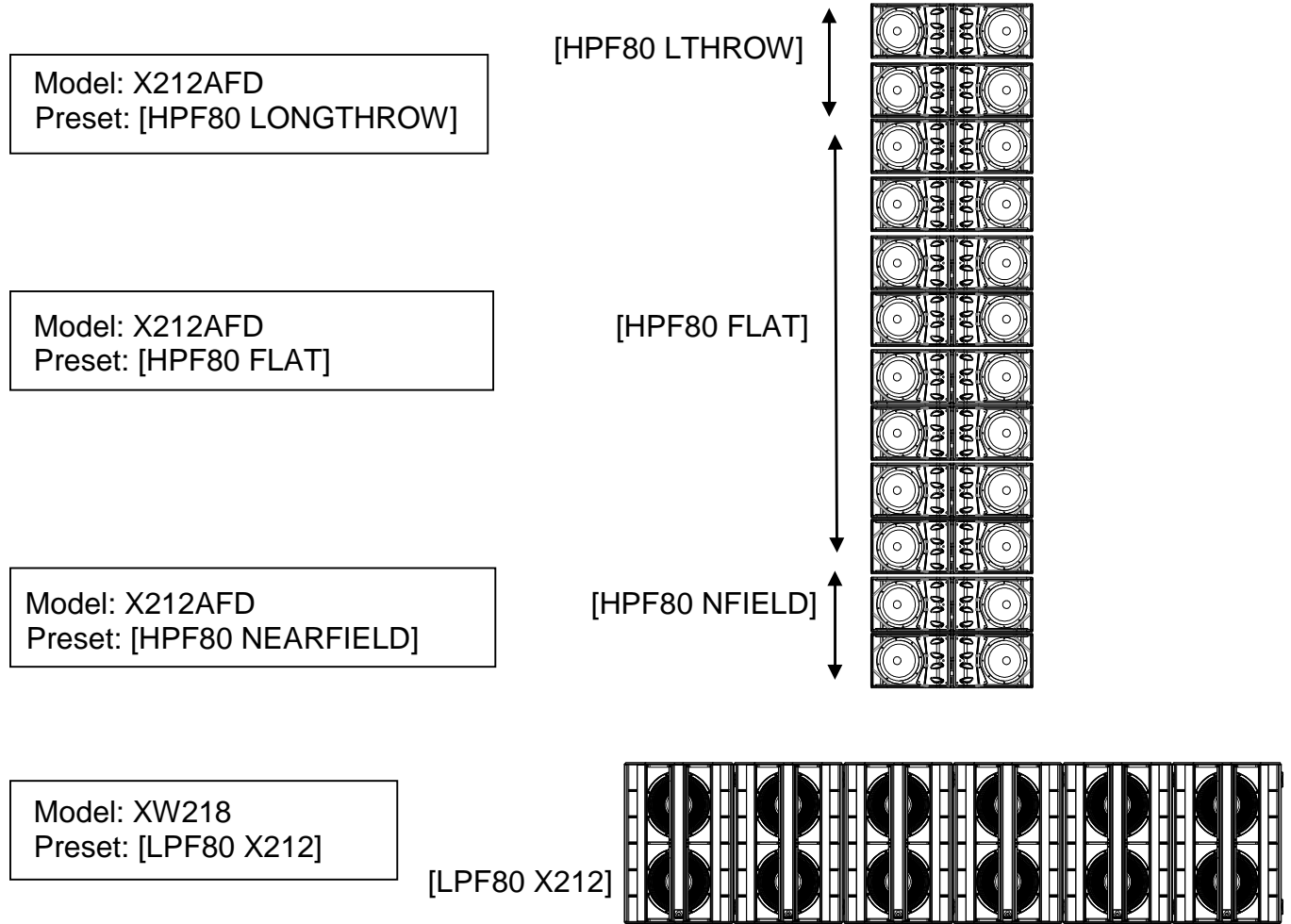
 The minimum number of cabinets to be used as a line source system is 6 cabinets. We do not recommended to use less than 6 cabinets per side. The optimum number of cabinets per side would be from 8-9 cabinets to up.


 Place the subwoofers side by side. If not possible, the maximum distance between two adjacent acoustic centres must be 2.8m when the upper frequency limit of the subwoofer is at 60 Hz.


 **SYSTEM ALIGNMENT**
The system is pre-aligned from the factory. Do not forget to add the geometric delay depending on the configuration used.


3.1.4 X212AFD as a line source (including NearField and Longthrow cabinets) with XW218 extension on floor and upper frequency limit of the subwoofer at 80 Hz.

The XW218 provides an extension of the bandwidth in the low end, down to 25 Hz. The system operates over the nominal bandwidth 25 Hz – 18 kHz, -10dB.



 The minimum number of cabinets to be used as a line source system is 6 cabinets. We do not recommended to use less than 6 cabinets per side. The optimum number of cabinets per side would be from 8-9 cabinets to up.

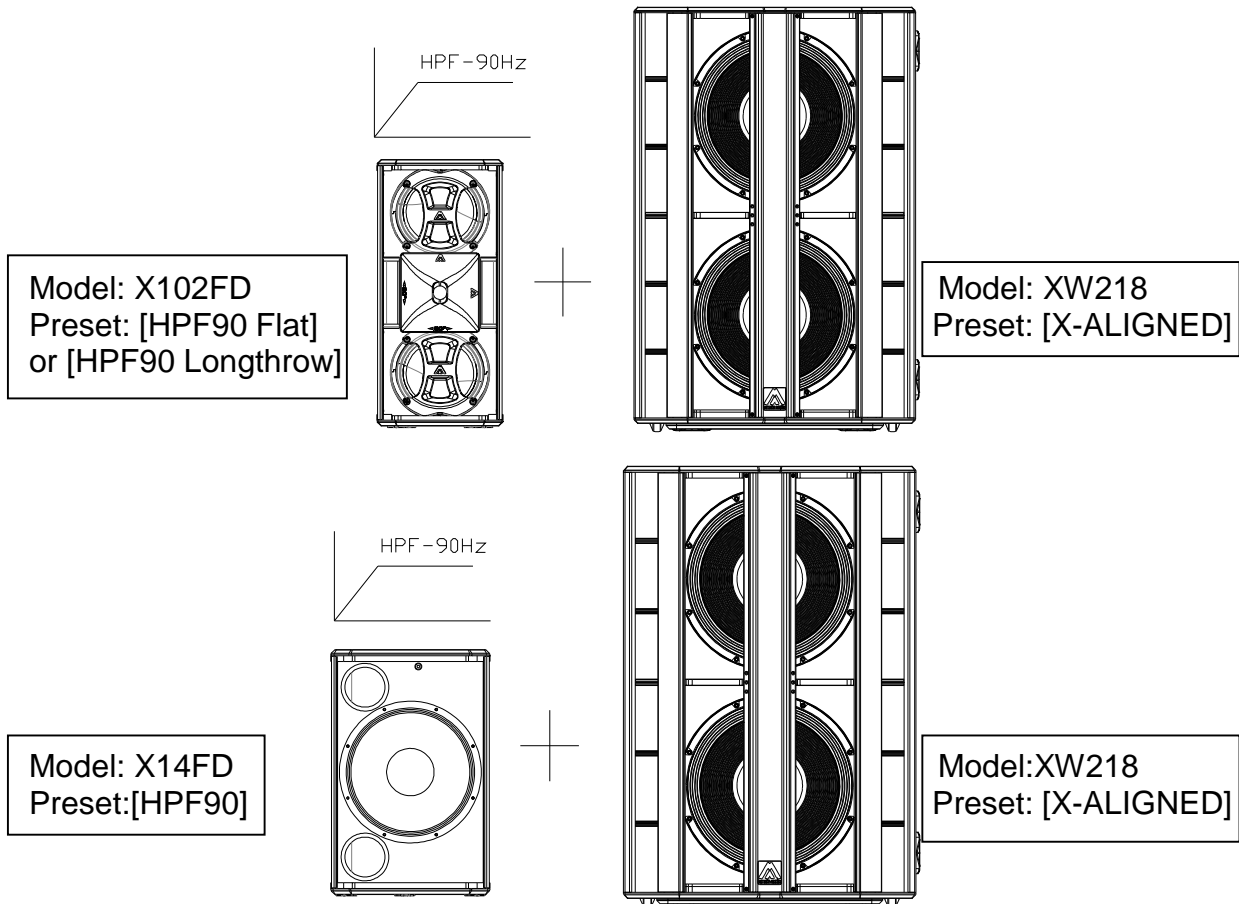
 Place the subwoofers side by side. If not possible, the maximum distance between two adjacent acoustic centres must be 2.1m when the upper frequency limit of the subwoofer is at 80 Hz.

 **SYSTEM ALIGNMENT**
The system is pre-aligned from the factory. Do not forget to add the geometric delay depending on the configuration used.

3.2 As extension for X102FD & X14FD

The XW218 provides an extension of the bandwidth in the low end for the X102FD & X14FD systems, down to 25 Hz.

This extension can be done at the 90 Hz crossover point. The corresponding preset must be selected on the X102FD or X14FD, as shown below:



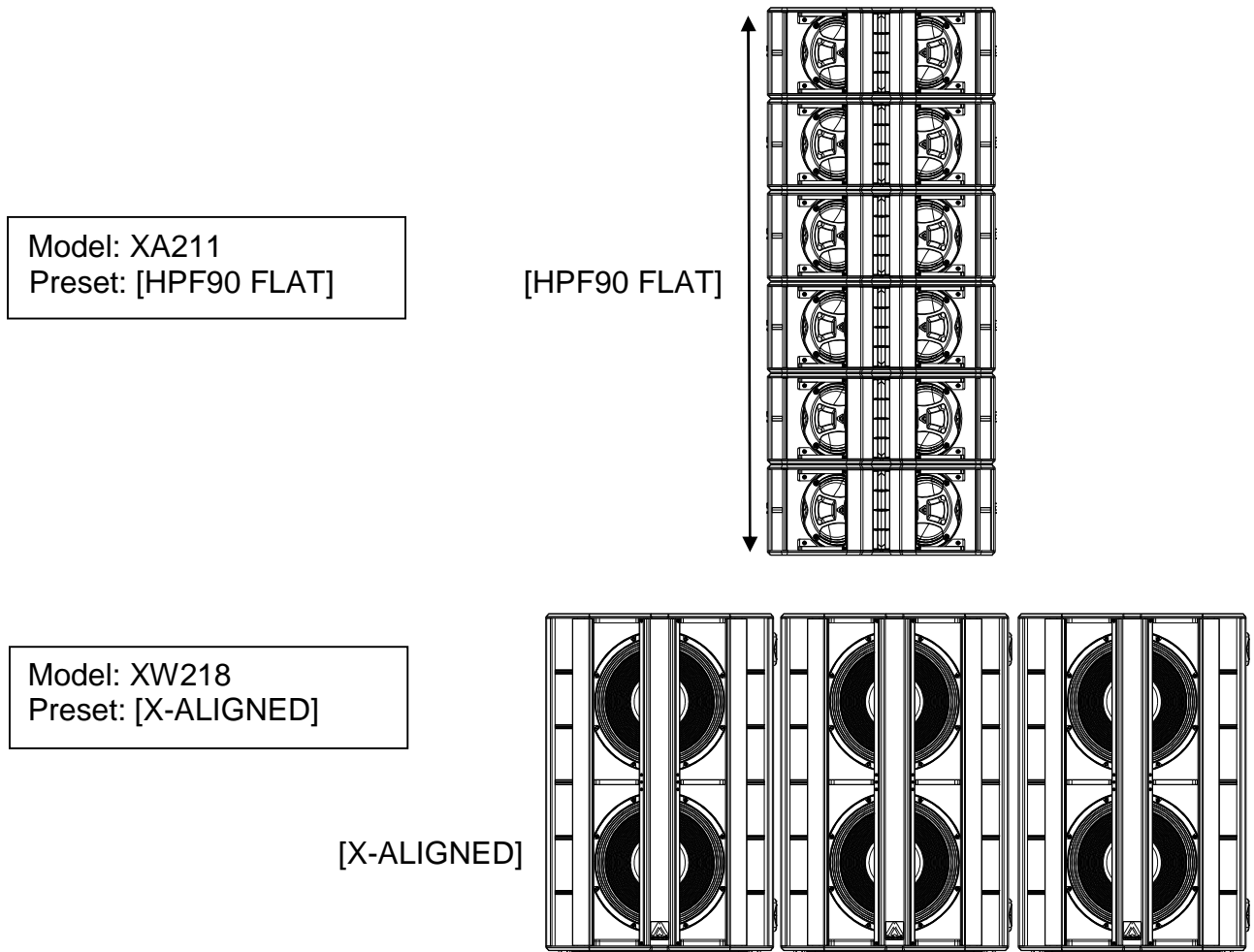
SYSTEM ALIGNMENT

The system is pre-aligned from the factory. Do not forget to add the geometric delay depending on the configuration used.

3.3 X211 as a line source with XW218 extension on floor

The XW218 provides an extension of the bandwidth in the low end, down to 25 Hz. The system operates over the nominal bandwidth 25 Hz – 19 kHz, -10dB.

This extension can be done at the 90 Hz crossover point. The corresponding preset must be selected on the XA211, as shown below:



The minimum number of cabinets to be used as a line source system is 6 cabinets. We do not recommended using less than 6 cabinets per side.



Place the subwoofers side by side. If not possible, the maximum distance between two adjacent acoustic centres must be 1.9m when the upper frequency limit of the subwoofer is at 90 Hz.



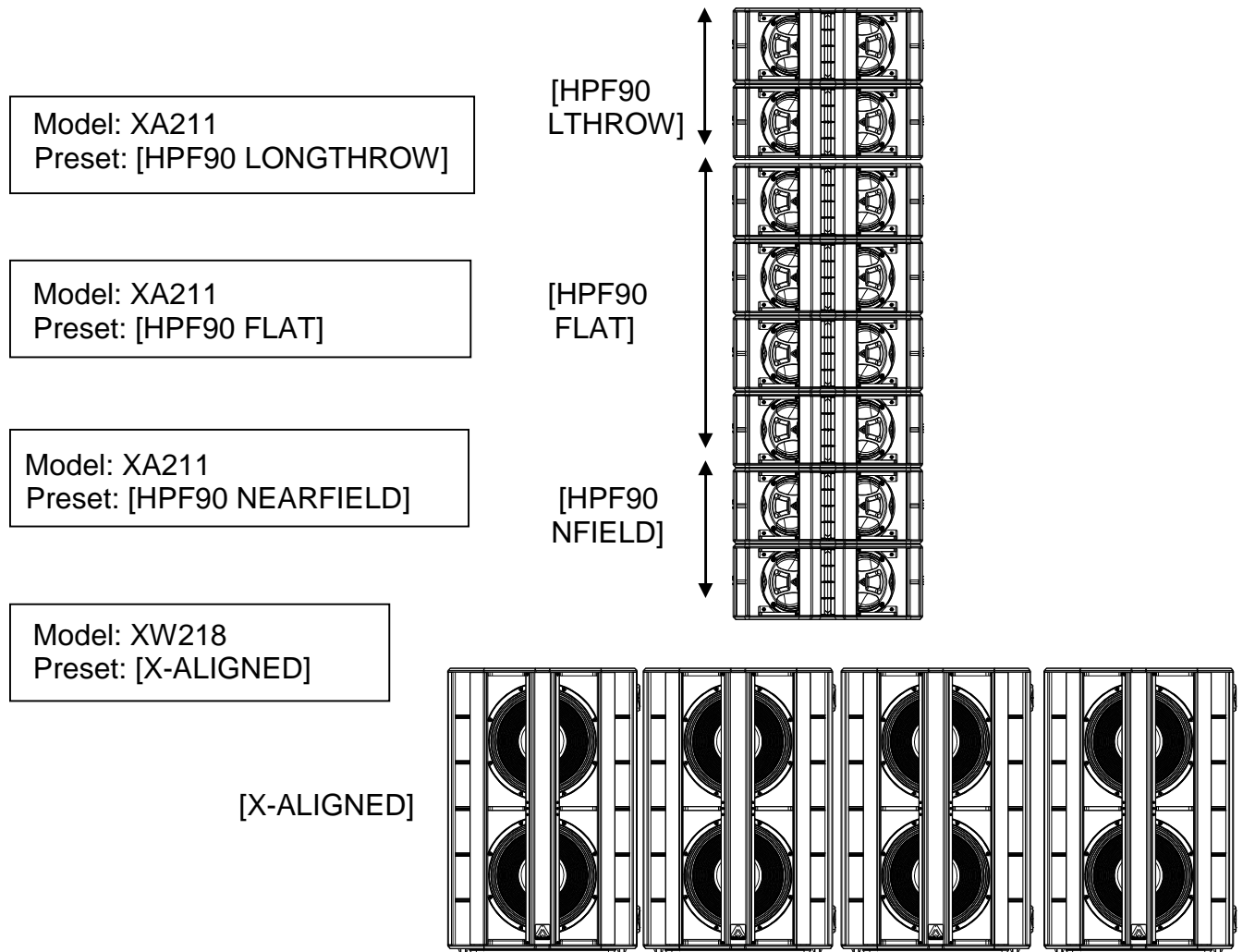
SYSTEM ALIGNMENT

The system is pre-aligned from the factory. Do not forget to add the geometric delay depending on the configuration used.

3.4 XA211 as a line source (including NearField and Longthrow cabinets) with XW218 extension on floor

The XW218 provides an extension of the bandwidth in the low end, down to 25 Hz. The system operates over the nominal bandwidth 25 Hz – 19 kHz, -10dB.

This extension can be done at the 90 Hz crossover point. The corresponding preset must be selected on the XA211, as shown below:



The minimum number of cabinets to be used as a line source system is 6 cabinets. We do not recommended using less than 6 cabinets per side.



Place the subwoofers side by side. If not possible, the maximum distance between two adjacent acoustic centres must be 1.9m when the upper frequency limit of the subwoofer is at 90 Hz.



SYSTEM ALIGNMENT

The system is pre-aligned from the factory. Do not forget to add the geometric delay depending on the configuration used.

3.5 General purpose (Standard) presets

These presets can be used to match the XW218 with any other satellite or array system. These presets are not prealigned, so a time alignment with the satellite or line array system is recommended. There are three standard presets, and they are defined by the Low Pass Filter frequency, which can be selected at 80, 90 or 100 Hz:

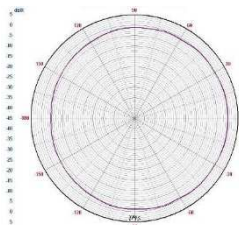
[LPF80 Standard]

[LPF90 Standard]

[LPF100 Standard]

3.6 Cardioid presets

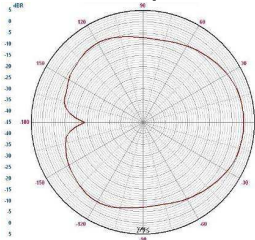
The XW218 enables the combination of three or multiple of three subwoofer cabinets in an array to provide exceptional directivity at low frequencies. High directivity at low frequencies has two main effects on the sound field: firstly, the low frequency level behind the subwoofer cabinets is greatly reduced; secondly, in closed venues the diffuse sound field at low frequencies is reduced so the low frequency reproduction is



much more precise. 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 40 Hz).

Fig.4. Traditional polar pattern of a subwoofer at 40 Hz

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.

This can only be achieved with cabinets that incorporate independent delay units on their DSP, as the XW218.

Fig.5. Cardioid pattern

3.6.1 With 3 units

The XW218 can generate an uncompromised cardioid behaviour, which means that there is no need for special cabinets, enabling the use of the system's full efficiency with just "one finger". 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.

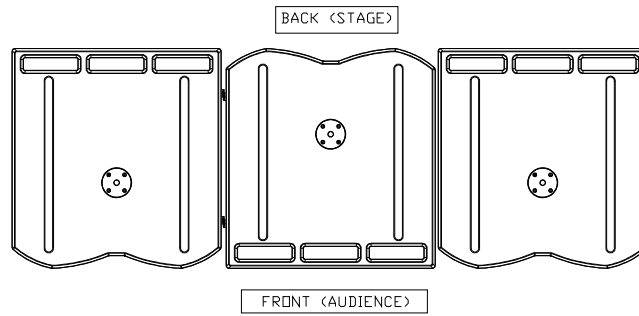


Fig. 6. Cardioid configuration for XW118 subwoofer (stack)



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:

XW218 Preset (BACK STAGE)	XW218 Preset (FRONT AUDIENCE)	Top box / array model	Top box / array preset
CARD80 STANDARD	LPF80 STANDARD	Generic, HPF 80 Hz	Subwoofers must be time aligned
CARD90 STANDARD	LPF90 STANDARD	Generic, HPF 90 Hz	Subwoofers must be time aligned
CARD100 STANDARD	LPF100 STANDARD	Generic, HPF 100 Hz	Subwoofers must be time aligned
CARD X-ALIGNED	X-ALIGNED	X14FD, HPF90 Hz	HPF90
CARD X-ALIGNED	X-ALIGNED	X102FD, HPF90 Hz	HPF90 FLAT HPF90 LONGTHROW
CARD60 X212	LPF60 X212	X212AFD	HPF60 FLAT HPF60 NEARFIELD HPF60 LONGTHROW
CARD80 X212	LPF80 X212	X212AFD	HPF80 FLAT HPF80 NEARFIELD HPF80 LONGTHROW

Fig.7. Correspondence of rear and front presets for cardioid applications



IMPORTANT NOTE: Due to the internal set-up of the cardioid presets, the threshold level (limiter) of the front facing subwoofers (**FRONT AUDIENCE**) must be reduced by -4 dB when using stacks of 3 subwoofers.

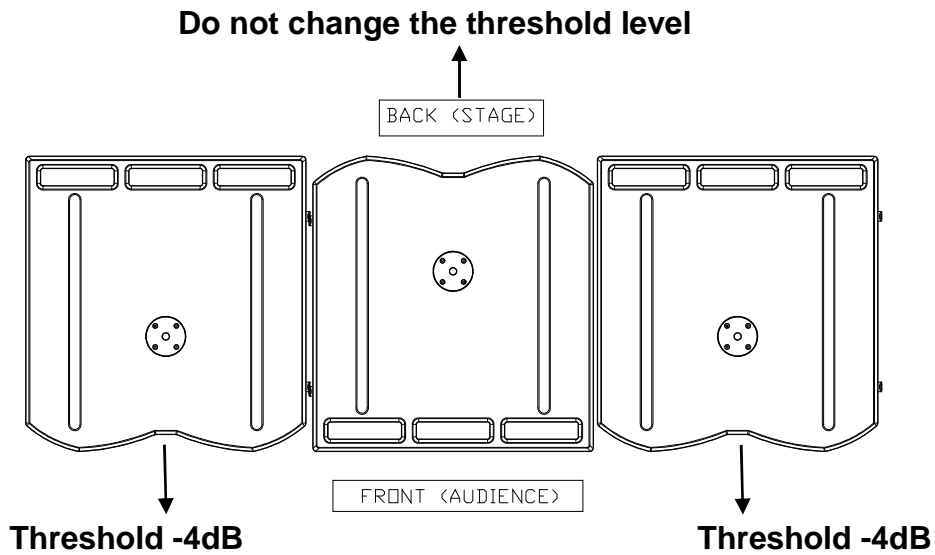


Fig.8. Threshold levels for XW218 subwoofers

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.

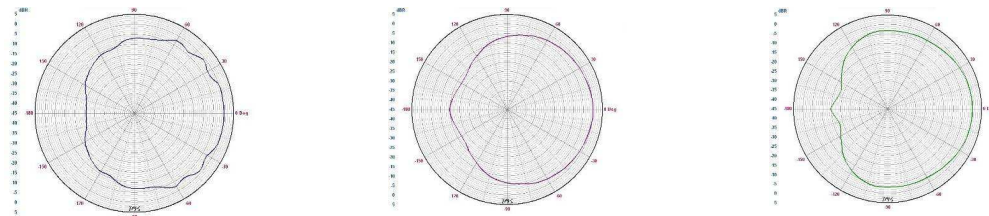


Fig.9. Back energy rejection at 40 Hz / 50 Hz / 63 Hz

4. CONTROL AND CONNECTION PANEL

The XW218 control panel contains the following elements:



Fig. 10. XW218 control and connection panel

A) TOUCHSCREEN: Displays information about the System status: current preset, network IP, amplifier temperature and signal input level. Allows the user to configure the system without the need of an external computer: IP address setting, Preset selection, Delay, Gain, Limiter, ECO mode on/off, Signal LEDs on/off, etc.
 NOTE: The default PIN to access the setup menu is “1234”.

B) MODEL DATA: The basic data of the model is found here:

- Model reference
- Average current draw (A)

C) OVERVOLTAGE PROTECTION: These LEDs show the status of the AC mains supply.

- **POWER ON:** (Blue) When lit, the equipment is ON and the AC input level is within the permitted range (up to 260 VAC).
- **>250V:** (Red) When activated, the AC voltage is permanently out of the permitted range of the equipment, so it will remain under protection until this condition is solved. Revise your connections and mains power installation and consider that other equipment connected to this line may have been damaged.

D) NETWORK: Two 8-pin RJ45 / EtherCon® compatible connectors for the connection to Ethernet networks up to 1Gbps. This connection can be used for remote control via software (DSPStudio) and for audio signal input via Dante™ audio networking. Please refer to Amate Audio DSPStudio Quick Installation Guide for more information on remote connection. The two connectors are interconnected by means of an internal switch, so they can be used interchangeably and allow the chain connection of several boxes. **IMPORTANT:** If Dante is used it is not recommended to chain more than eight units, due to latency reasons.

E) BALANCED INPUT/LINK:

XLR-3 Female balanced signal connector for signal input.

XLR-3 Male connector for parallel connection of various cabinets with the same input signal.

Nominal Input sensitivity: +2dBu (1 Vrms)

Maximum Input Voltage without input compression: +14dBu (4Vrms)

Maximum Input Voltage without clipping: +20dBu (8Vrms)



IMPORTANT: Please always use balanced microphone cable with the following pin assignment:

1= Shield (Ground) 2= Live (+) 3= Return (-)

F) AC MAINS INPUT/LINK: Mains supply connection via PowerCon.

- Blue connector for AC in.
- Grey connector to feed other units in parallel. Linking up to two units is possible, provided that a quality cable of a minimum section of 3x2.5mm² is used. Connecting more than two units in parallel may lead to a voltage drop in the cable that will reduce the equipment performance.



Always use mains power cable supplied by manufacturer.
Never connect the Xcellence cabinets to an unearthed mains supply or by using an unearthed mains cable.

G) AUTHENTICATION QR CODE: This QR code is a smart label that ensures that the product is an original Amate Audio product. To verify the authenticity, please follow the instructions in the following link:

<http://www.amateaudio.com/en/product-authentication/>

5. CONNECTING

5.1 Parallel connection

5.1.1 Analogue Audio Signal

Connect the signal (mixing desk output) to INPUT on the first unit. Use the LINK output to transfer the INPUT signal to the second unit and thus sequentially for further units. All of the units in this chain must be switched on.

Fig.11. Parallel connection for the XW218 (signal)

5.1.2. Network

The two available Ethernet ports via the EtherCon RJ-45 connector are internally switched and both can be used as input and link to other cabinets. All of the units in this chain must be switched on.

The number of units allowed in parallel or daisy chain depend on whether Dante audio networking is being used.

When using Dante, a maximum number of eight cabinets is permitted due to latency reasons. When not, there is no specific limit for daisy chaining (control and monitoring using DSPStudio®).

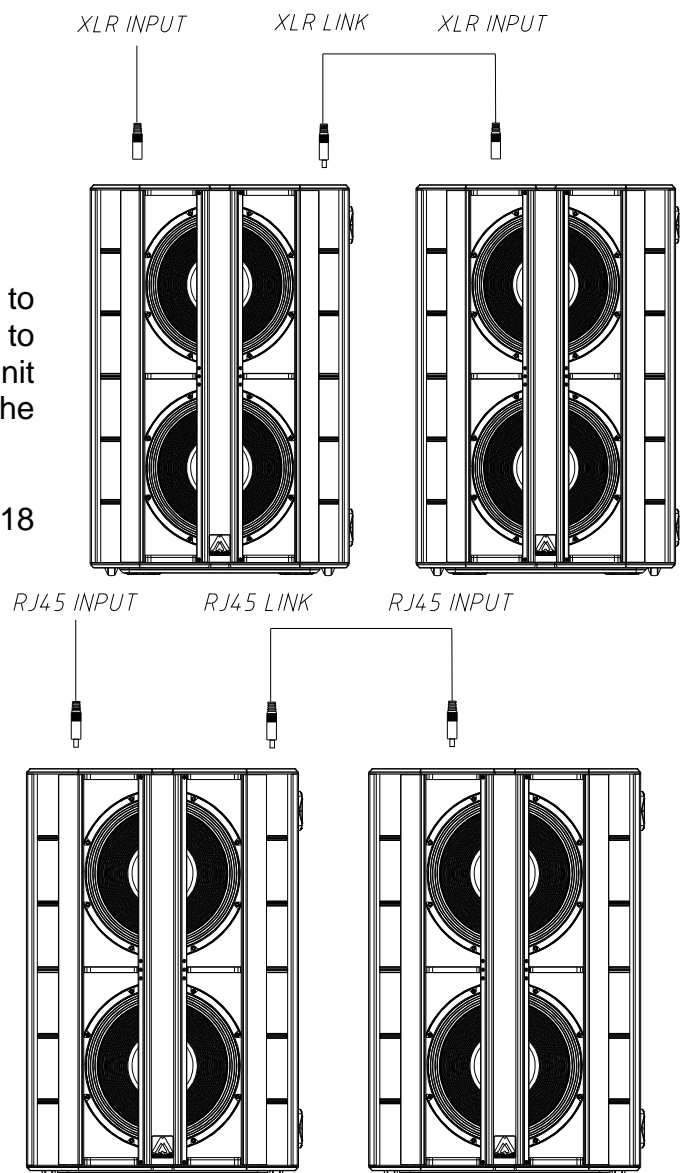


Fig.12. Parallel connection for the XW218 (network). You can link up to eight units when using DANTE networking, or more when not using it.

5.1.3 Mains Power

For the mains connection in parallel use the cable with grey Neutrik PowerCon NAC3FCB at one end and the blue Neutrik PowerCon NAC3FCA at the other end.



Do not connect more than two XW218 units using the AC Mains link connector. Do not connect Xcellence series units in parallel using PowerCon-PowerCon without earth.

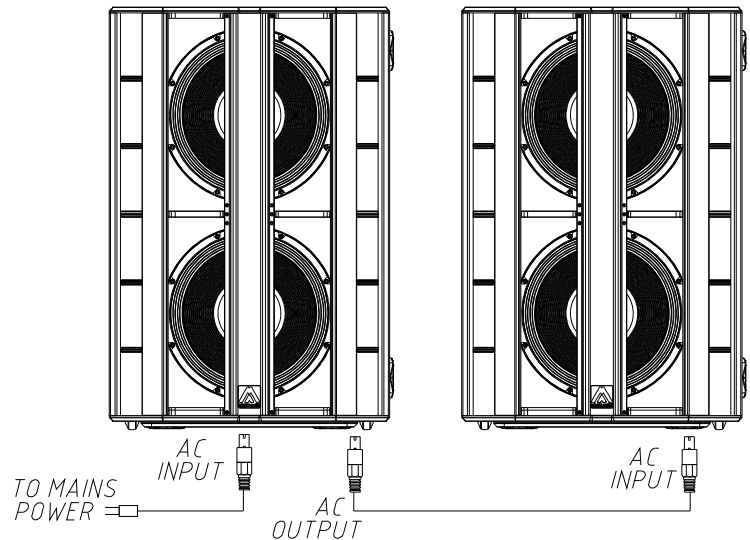


Fig.13. Parallel connection for the XW218 (mains). You can link up to two units.

6. OVERVOLTAGE PROTECTION

The active Xcellence series models incorporate an exclusive protection by Amate Audio against mains voltage overload and other related problems (loss of neutral, connection between phases, etc.). In the mains input an electronic circuit compares the input voltage with a reference value. When the input exceeds 250 Volts, the circuit reacts by blocking the input tension until it returns to its correct limits (230V +/- 10%). When the overvoltage LED lights up red, the unit stops running, until the correct voltage is re-established.

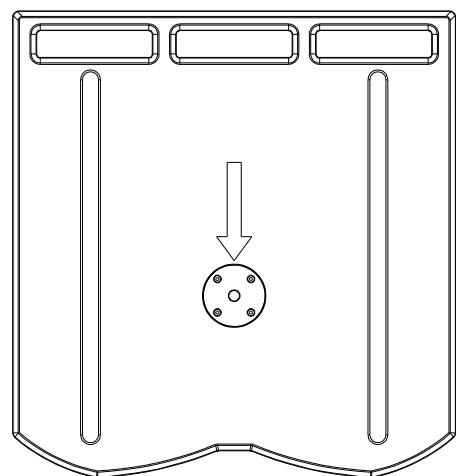
Generally, the cause of such an anomaly tends to be a neutral voltage drop or incorrect connection of the equipment to 400V supply. Whenever the overvoltage LED lights up, check the tension of the electrical phases: other devices in the sound system are also at risk of electrical fault and severe damage

7. MOUNTING AND INSTALLATION

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

7.1 XW218 with full-range systems

The XW218 incorporates a M20 base-plate on its upper side for the attachment of a standard 35 mm diameter bar.



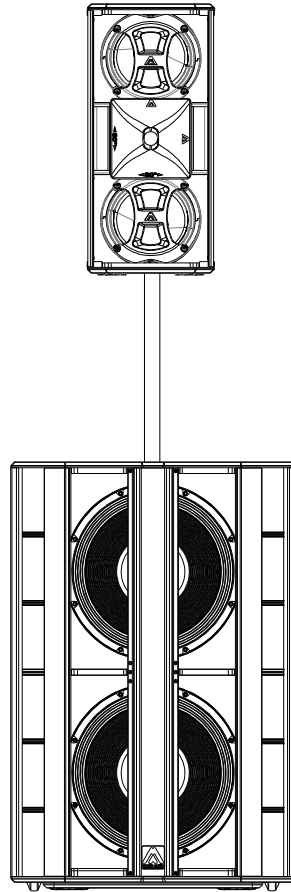


Fig. 14. XW218 socket

7.2 Stacking with XA211

The STAX is an optional accessory for stacking the XA211/XA211P with XW218. See “STAX user’s manual” for more information.

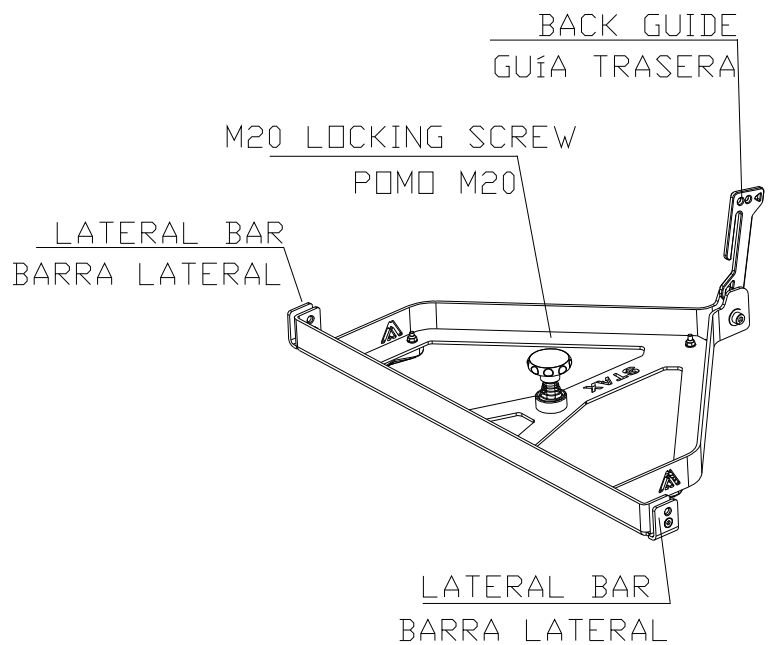


Fig.15. STAX frame stacking

7.3 Stacking with X212AFD

The XW218 incorporates a M10 thread for a stacking frame.

The FR-X212 is an optional accessory for stacking the X212AFD with XW218. See “FR-X212 user’s manual” for more information.

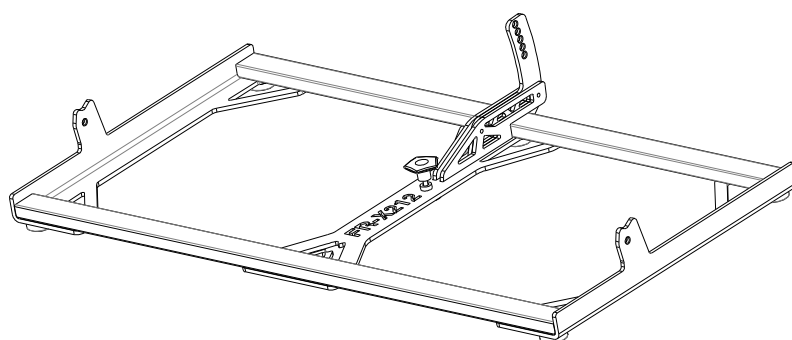


Fig.16. FR-X212 frame stacking

8. TROUBLESHOOTING

System not powering up

- Check the Overvoltage Protection leds
 - No LED lit: Check if voltage is arriving to the PowerCon socket, and if mains cable is in good condition. If yes, the overvoltage circuit may be damaged. Contact support.
 - Red (>250V). Voltage arriving to the PowerCon socket is above 250VAC. Check the mains voltage is in the rated limits (230VAC +/-10%). If mains voltage is OK, the overvoltage circuit may be damaged. Contact support.
 - Blue (Power On): Overvoltage circuit is functioning properly. If none of the Status LEDs or the touchscreen are being lit, the fuse in the power module may be blown. The replacement of this fuse must be carried out by specialized personnel as it is an internal component of the amplifier module.

No output sound

- Check with the indicators (Signal Present LED & Touchscreen) that the signal is being received by the system.
- Check that the signal cables are in good condition and connected at both ends
- The mixer output level must not be at minimum.
- Check that the mixer channel is not Muted.
- Check that the system is not in MUTE or STANDBY (MUTE LED or STANDBY LED) not lit. If yes, go inside the menu using the touchscreen and deactivate them:
 - To disable the Standby go to SETUP and select STANDBY OFF.
 - To disable the MUTE go to AUDIO, GAIN and push the icon with a loudspeaker.
- Check that the system GAIN is not set to the minimum. To do that, go to the AUDIO setting using the touchscreen, select GAIN and move the slider to the 0dB position.

Distorted output signal

- The system is being saturated with a very high input signal, frequently caused by the same mixer. Check the output level or mixer gain channels.

Poor bass levels

- Check the polarity on the signal connections between the mixer and cabinets. If any of the Pins (1, 2 or 3) have been inverted at the cable ends, this will cause significant performance and sound quality loss.

Noise and Hum

- Check that all the connections to the active units are in good condition.
- Avoid intertwining between mains supply cables or proximity to transformers or Electromagnetic (EMI) emitting devices.
- Check there is no light intensity regulator in the same AC circuit as the unit. ALWAYS connect the sound and light circuits in different phases.
- Check that there is a proper connection to EARTH in the electrical installation.

Forgotten PIN for Touchscreen

- The default PIN is "1234".
- Should you have changed the PIN and forgotten it, follow these steps:
 - Turn the system off.
 - Turn the system on.
 - When the display shows the word "Initializing", press anywhere on the touch screen during at least 5 seconds.
 - The PIN will be restored to its default value "1234".

9. TECHNICAL FEATURES

	XW218
Analogue Audio Input	
Sensitivity	+2dBu
Impedance	20kΩ
Audio Network Input	
Type	Dante™ Audio Networking
Channels	1 channel @ 48 kHz
Mains Supply	
Type	Universal switch mode power supply
Nominal input	85-265 VAC/45-65 Hz
Average current draw	9.4A
AD/DA converters	24 bit / 48 kHz
DSP architecture	64 bit
Frequency response (-10 dB)	25 Hz-130 Hz (LPF100)
Maximum output level (1m/continuous)	141 dB
Amplifier (program)	5000W
Nominal directivity (-6dB)	omnidirectional
Components	
LF	2x18" neodymium woofers (4" voice coil)
Cabinet	
Type	Bass-reflex
Height	1116 mm
Width	750 mm
Depth	780 mm
Weight (net)	106 Kg
Connectors	2 x AC PowerCon (input, link) 2 x XLR (input, link) 2x EtherCon RJ45 for Ethernet (connection/link)
Material	Multilayer birch plywood, 2mm powder coated steel front grilles with acoustic grey cloth
Finish	Hi-resistance black Polyurea coating

ANNEX I. TOUCH PANEL OPERATION

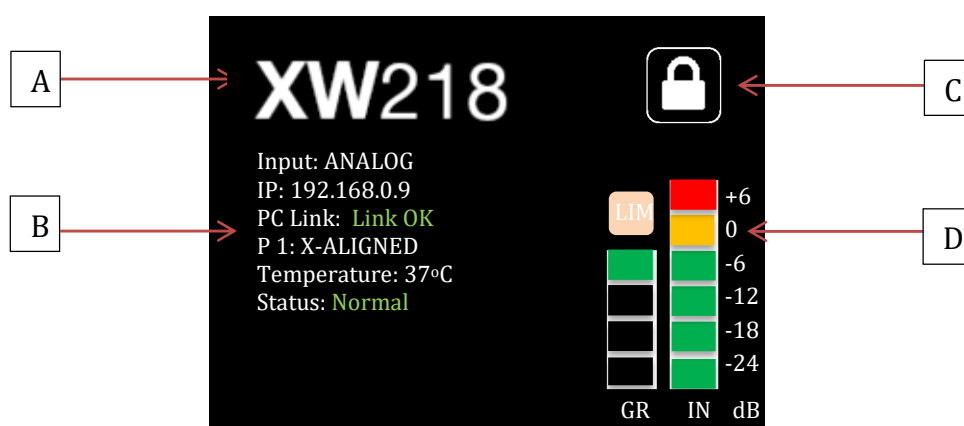
Amate Audio's XW218 internal DSP parameters could be tuned using its integrated LCD touchscreen. The main specs of the screen are:

- TFT-LCD screen
- 320x240 pixels resolution
- Vision angle of 180 degrees
- 16.7 Millions of colours

I.1. Main screen

Just after turning on the loudspeaker unit, a first screen shows the: Amate Audio's logo, firmware version and the processing version. Once the system is initialized, a welcome screen shows a picture of the system and the serial number.

When all the start-up process finish, the main screen is shown like:



A. Loudspeaker model

B. System status

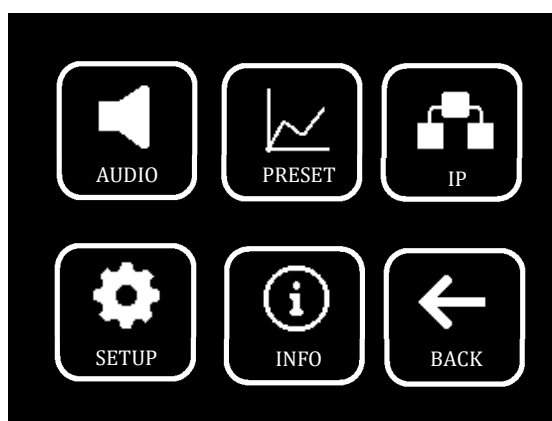
- INPUT: Shows the selected audio source. The options are: **ANALOG** for XLR analogue input, **DANTE** for the RJ45 VoIP Dante digital audio input or **AUTO** for an automatic selection of the audio source. In presence of Dante VoIP audio a message *Flow OK* is shown
- IP: IP address of the Ethernet module
- PC Link: Connection status with DSP Studio. There's three states: **Initializing** when IP is configuring, **Waiting** for no connection

established and **Link OK** when the unit achieves successful connection with DSPStudio

- P X/M X: Current preset loaded into the DSP. For user's memories the name starts with M_
 - Temperature: Internal amplifier temperature
 - Status: DSP status indicator. The options are: **Normal** for common operation, **Mute** when DSP have been configured for muting the audio input, **Standby** for this energy saving mode and **Protect** when the internal processor is protecting the loudspeaker unit against over-voltage.
- C. PIN lock indicator: If a PIN lock was entered in settings, the lock icon is shown closed. In this case the unit will claim for a valid PIN. For unlocking the unit, push on the lock. When the unit is unlocked, the lock will be open.
- D. Signal indicators: The right one shows the current input signal level (**IN**) in decibels. The left one shows the current status of the Limiter. LIM icon light on when the limiter is working. **GR** stands for Gain Reduction; it shows the gain reduction Limiter is applying for trying to protect the loudspeaker from *clipping*.

I.2. Settings screen

For accessing to the settings menu just push anywhere in main screen



Each sub-menu contains the following settings:

- **AUDIO**: General audio parameters set-up
- **PRESET**: Preset selection. It's possible to save user's presets.

- IP: Configuration of the Ethernet's module in order to enable communications with our control software DSP Studio.
- SETUP: Other unit's parameters configuration
- INFO: Detailed system information and system status
- BACK: Go back to main screen

I.3. AUDIO submenu

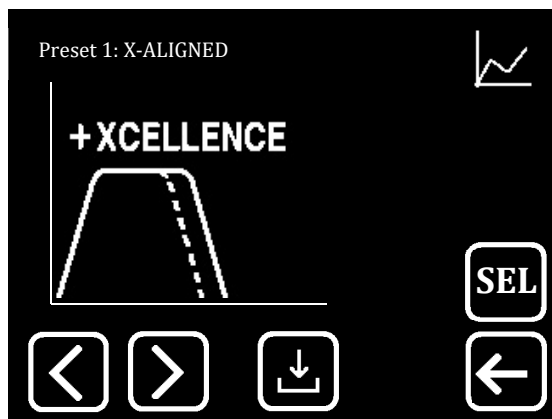


- GAIN: Gain reduction setup. It could be configured using a *fader* with a resolution of half a dB. Moreover, a mute button is available. An X in front of the speaker icon is shown when the unit is muted.
- LIMITER: Limiter threshold configuration. A Gain Reduction level indicator is available for proper threshold check.
- DELAY: Adjustment of the time shift among input and desired output. There's two ways of setting it: In meters or in milliseconds. Simply we've to push in the corresponding box. The space-time conversion is automatically computed. In addition, a polarity control button is available: + for positive polarity, - for negative polarity.
- EQ: This sub-menu helps to check the status of current filters in the DSP. These filters are applied on the top of the chosen base preset. An Ethernet communication with DSP Studio is mandatory in order to enable each filter. For the enabled filters a bypass button is available for controlling each one directly from the loudspeaker unit.
- SAVE: Access to DSP internal memory. Here we can save all the audio configuration in one of the free internal memory space the unit has. Push on the *Memory* box for choosing one available. Push on *Memory name* for naming

it. After the previous steps, push on Save button for writing on the DSP the memory

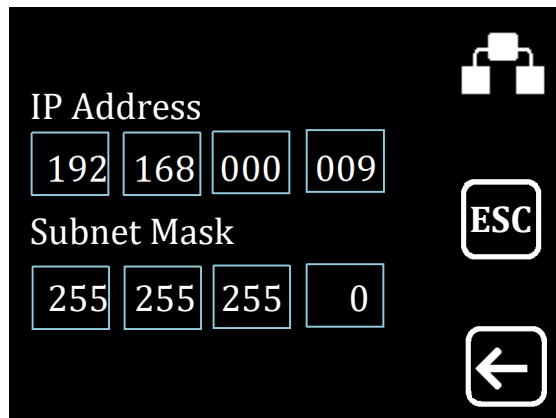
- BACK: Go back to settings screen

I.4. PRESET submenu



The loudspeaker unit contains several sound presets we can check inside this submenu. The browsing arrows allow us to change between presets. Press *SEL* button for loading the preset in the DSP. There is a shortcut for internal memory, so we can save a preset straight from this sub-menu.

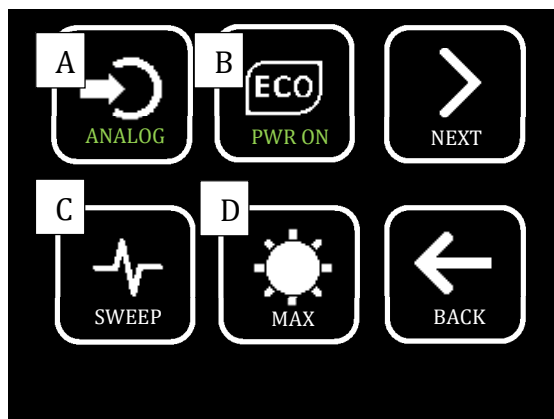
I.5. IP submenu



In this screen we can configure the internal Ethernet module. This loudspeaker unit doesn't have *Dynamic Host Configuration Protocol*, so is necessary to set up a fixed IP address. We recommend using the same values shown in the top image for the loudspeaker unit. In the control PC/laptop we recommend using with the same subnet mask and IP 192.168.0.1

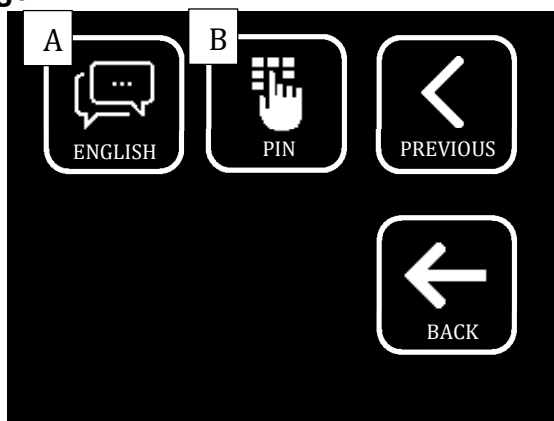
I.6. SETUP submenu

The SETUP submenu is composed of two pages, which can be browsed using the NEXT/BACK buttons.



- A. Input selection: Here we can choose which signal input the internal processor will use. The options are: ANALOG, DANTE or AUTO. In AUTO mode the unit automatically choose the signal input according to the presence of signal. If a conflict happens (Simultaneously use of analogue and digital connectors) the unit priorities digital AoIP Dante signal. In case Dante signal is no longer available, the unit will switch to use the analogue input.
- B. ECO mode: Enabling/disabling the energy saving mode. The options are:
- PWR ON: The energy saving mode is enabled
 - Standby: The energy saving mode is disabled
 - Auto: The energy saving mode will be enabled automatically after three minutes without input signal
- C. SWEEP: Diagnosis mode. The loudspeaker will emit frequency sweep.
- D. Backlight: Three backlight intensities: MAX (Maximum), MED (Medium), MIN (Minimum)

On the next page:



- A. Language: Select the interface language. The options are: ESPAÑOL, CATALA or ENGLISH.
- B. PIN lock: Configure the access code for the unit when locked. When the loudspeaker unit is locked, a closed key lock icon is shown in the main menu. Push on it for unlocking the unit.

I.7. INFO submenu

Here we can find advanced information about the unit, as well as the most relevant configurations parameters.



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DECLARATION OF CONFORMITY

In accordance with EN 45014:1998

Manufacturer's Name: "AMATE AUDIO S.L."
Manufacturer's Address: C/ Perpinyà 25, Polígon Industrial Nord
08226 Terrassa, (Barcelona), SPAIN
Brand: "AMATE AUDIO"

We declare under our own responsibility that:

Product: Active speaker systems with DSP. Audio apparatus for professional use
Name: Xcellence XW218

Conforms to the following product specifications:

Safety: IEC 60065-01 + A1
EMC: EN 55022:2006
EN 55103-1:2009
EN 55103-2 2009
FCC Part 15

WARNING:

In accordance to EN55022, this is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Supplementary Information

The product herewith complies with the requirements of the:

Low Voltage Directive 2006/95/EC
EMC Directive 2004/108/EC
RoHS Directive 2002/95/EC
WEEE Directive 2002/96/EC

With regard to Directive 2005/32/EC and EC Regulation 1275/2008 of 17 December 2008, this product is designed, produced, and classified as Professional Audio Equipment and thus is exempt from this Directive.

Date of issue: June 1st., 2023

Signature:

AMATE AUDIO S.L.
N.I.F: E59103481
Violinista Vellsolà, 18
Tel: +34 93 736 23 90
08222 Terrassa
Barcelona - SPAIN

Joan A. Amate
General Manager



Conformity Marking

Amate Audio S.L.

EXPORT & CUSTOMER SERVICE
Perpinyà, 25 · Polígon Industrial Nord
08226 Terrassa · Barcelona - SPAIN
T. +34 93 735 65 65
export@amateaudio.com

R&D, FACTORY AND MANAGEMENT
Violinista Vellsolà, 18
08222 Terrassa · Barcelona - SPAIN
T. +34 93 736 23 90
info@amateaudio.com



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Amate Audio S.L.

Perpinyà, 25 · Polígon Industrial Nord · 08226 Terrassa
T. +34 93 735 65 65 – F. +34 93 735 60 48 –
info@amateaudio.com

R&D and FACTORY:
Violinista Vellsolà, 18 · 08222 Terrassa

Barcelona – SPAIN

www.amateaudio.com