



*Great sound
from Barcelona
since 1972*

www.amateaudio.com

User's manual

XW218

XCELLENCE

May 2024

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.

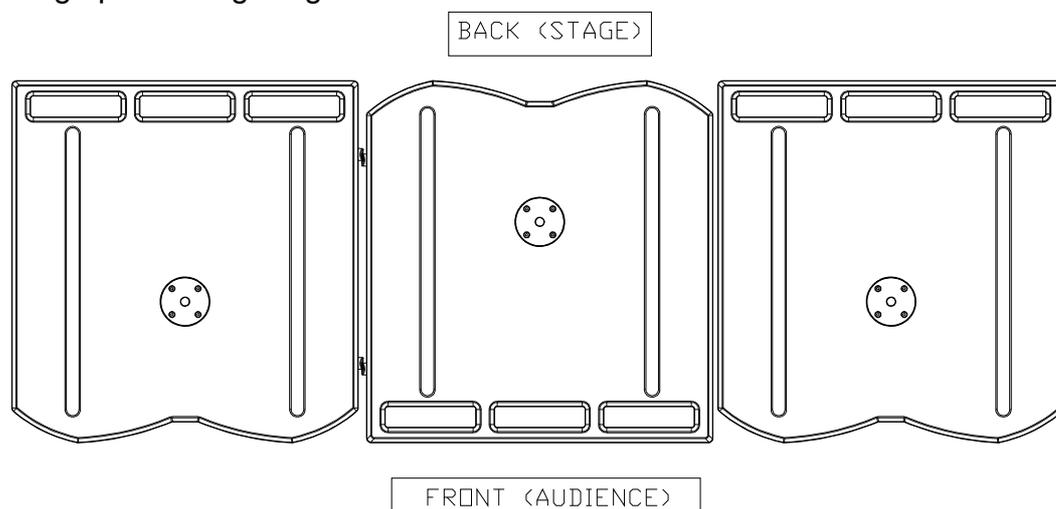


Fig.1. XW218 cardioid subwoofer array

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.

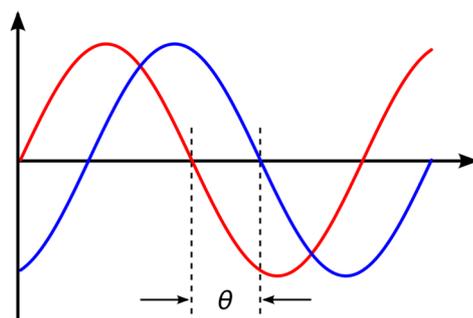


Fig.2. Phase difference θ between soundwaves of different sources

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.

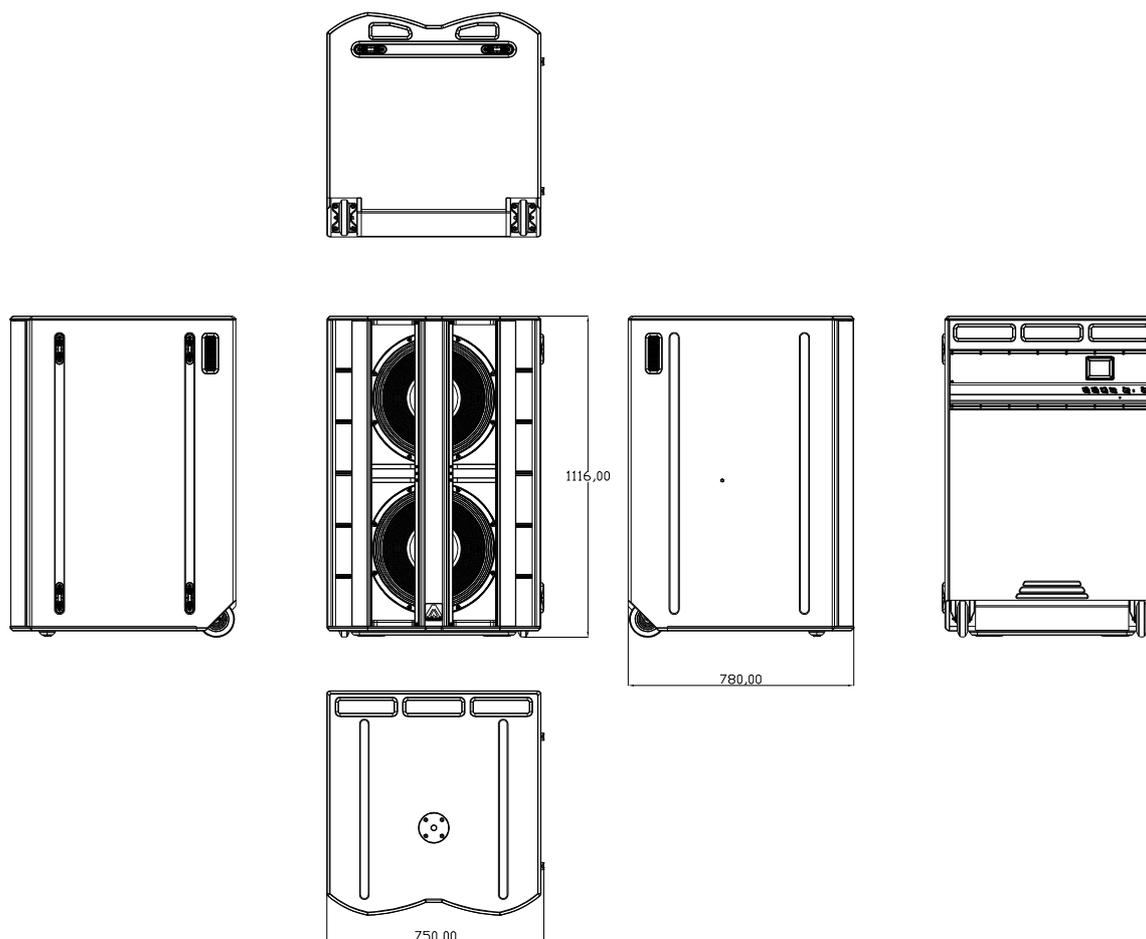


Fig.3. XW218 external dimensions

3 PRESETS

The XW218 includes several manufacturer presets for different types of application. The DSP system can also store up to 24 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.

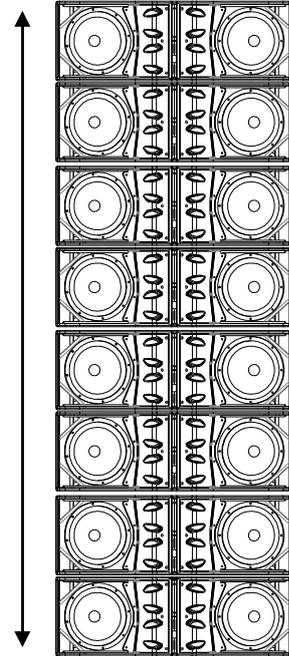
This extension can be done at two different crossover points: 60Hz or 80Hz. Please note that depending on the crossover point used in the subwoofer, the corresponding preset must be selected in X212AFD.

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.

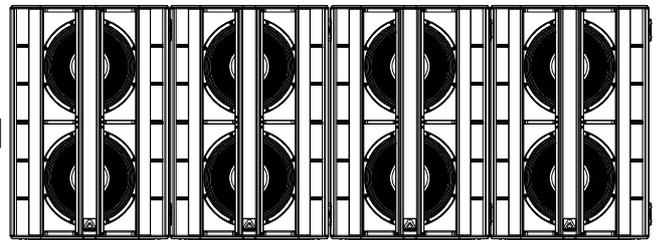
Model: X212AFD
Preset: [HPF60 FLAT]

[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

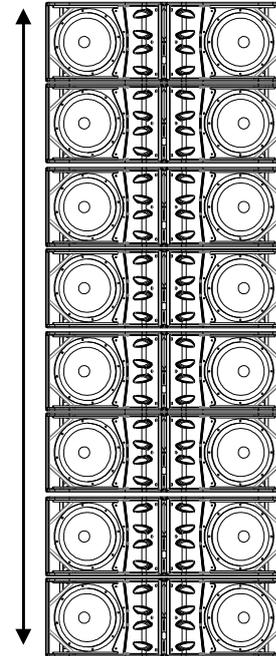
The system is pre-aligned from the factory. Do not forget to add the geometric delay depending on the configuration used.

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.

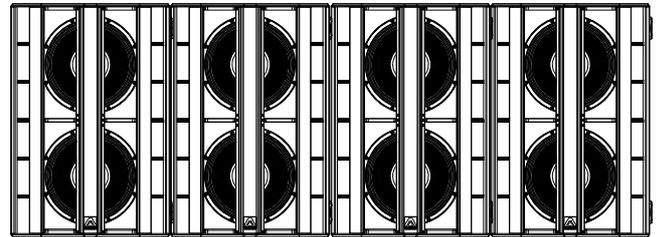
Model: X212AFD
Preset: [HPF80 FLAT]

[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.

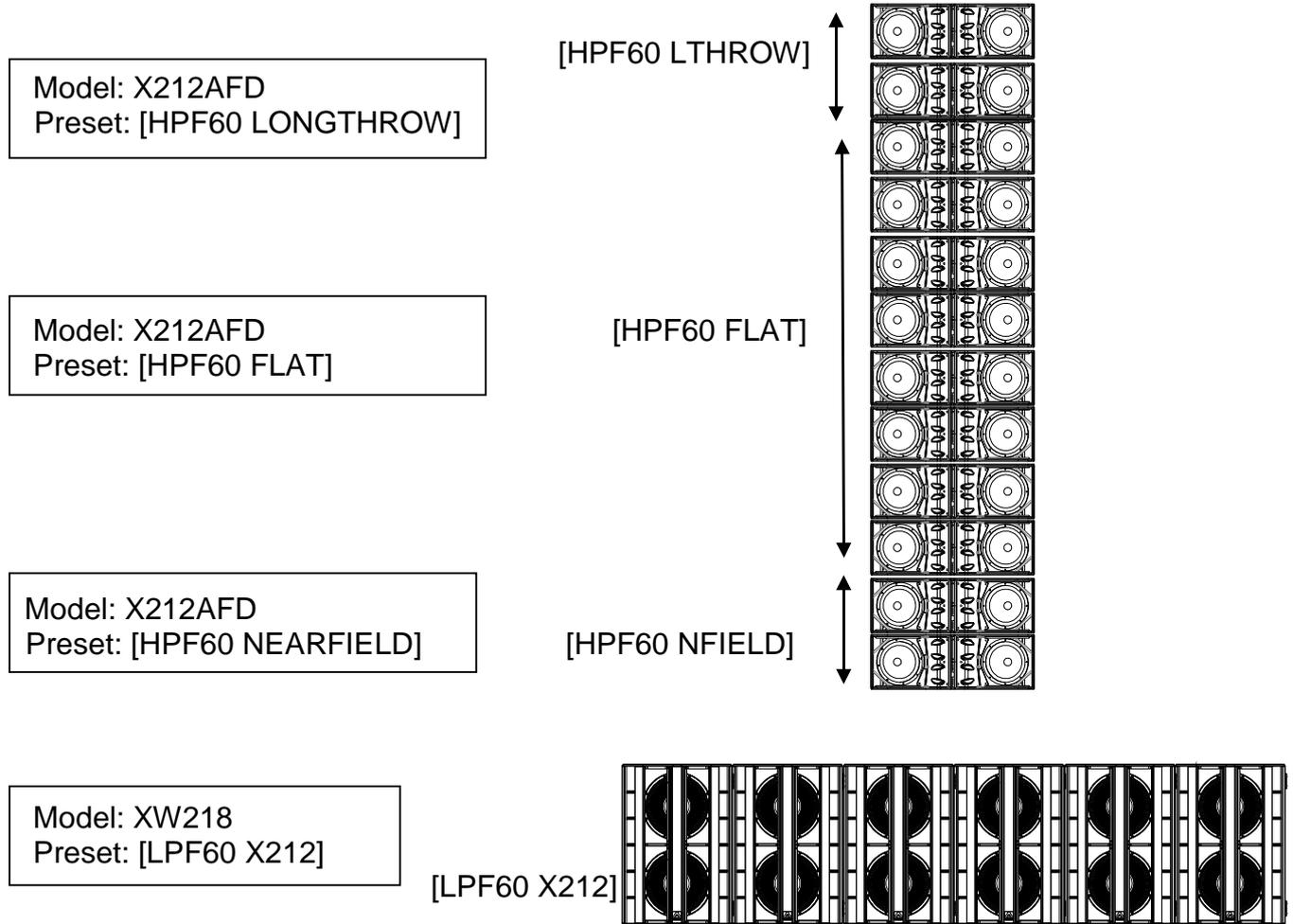


SYSTEM ALIGNMENT

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.



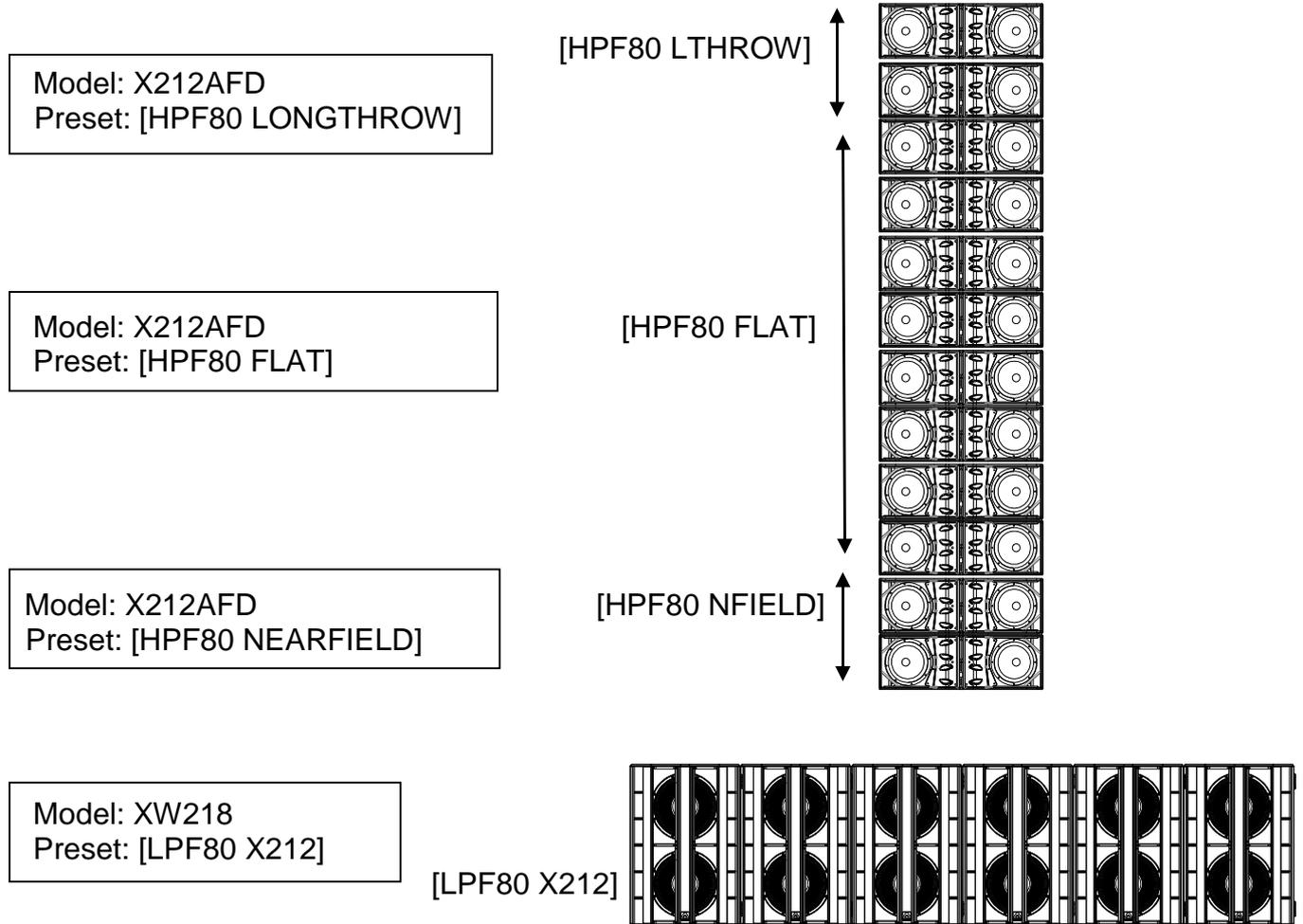
 The minimum number of cabinets to be used as a line source system is 6 cabinets. We do not recommended to use less than 6 cabinets per side. The optimum number of cabinets per side would be from 8-9 cabinets to up.

 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.

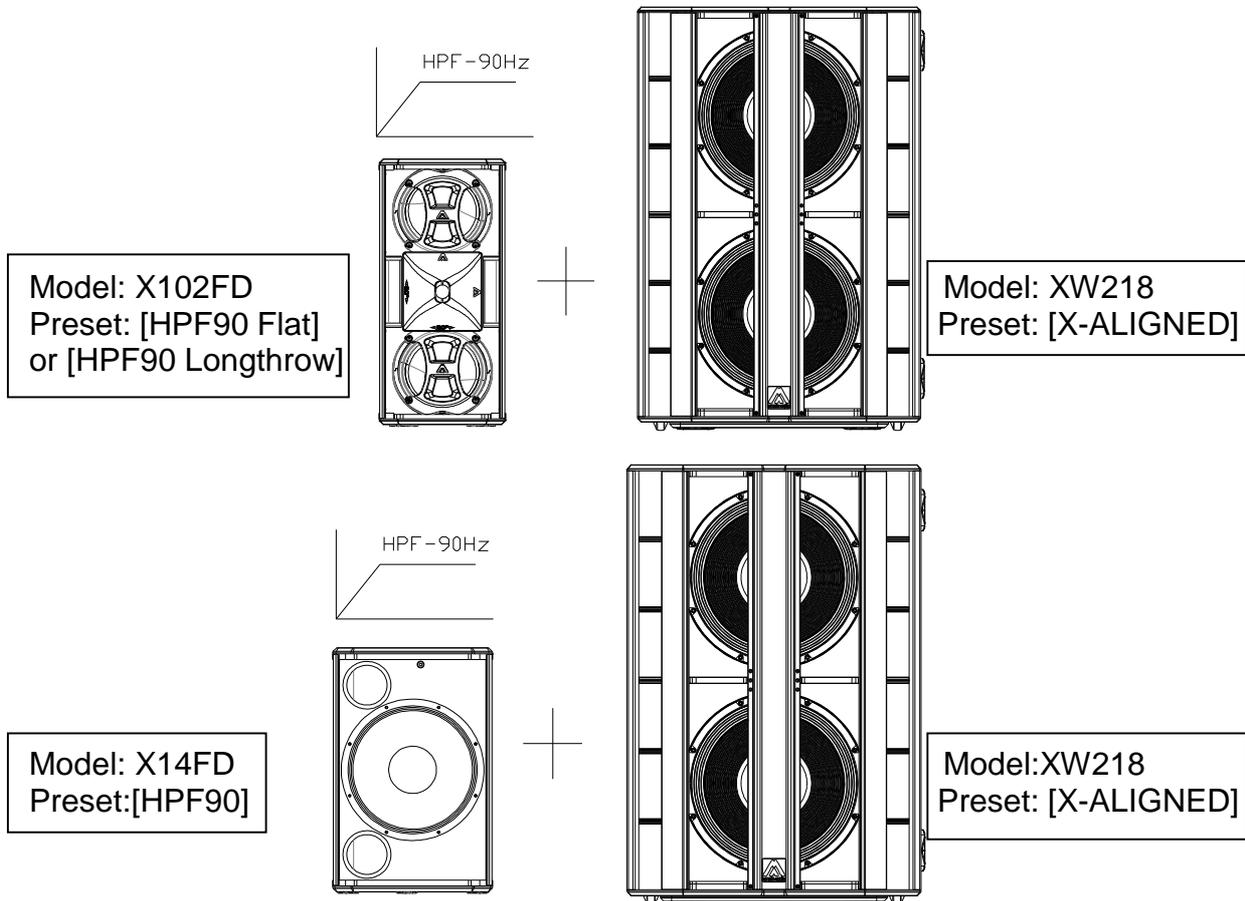
 Place the subwoofers side by side. If not possible, the maximum distance between two adjacent acoustic centres must be 2.1m when the upper frequency limit of the subwoofer is at 80 Hz.

 **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:



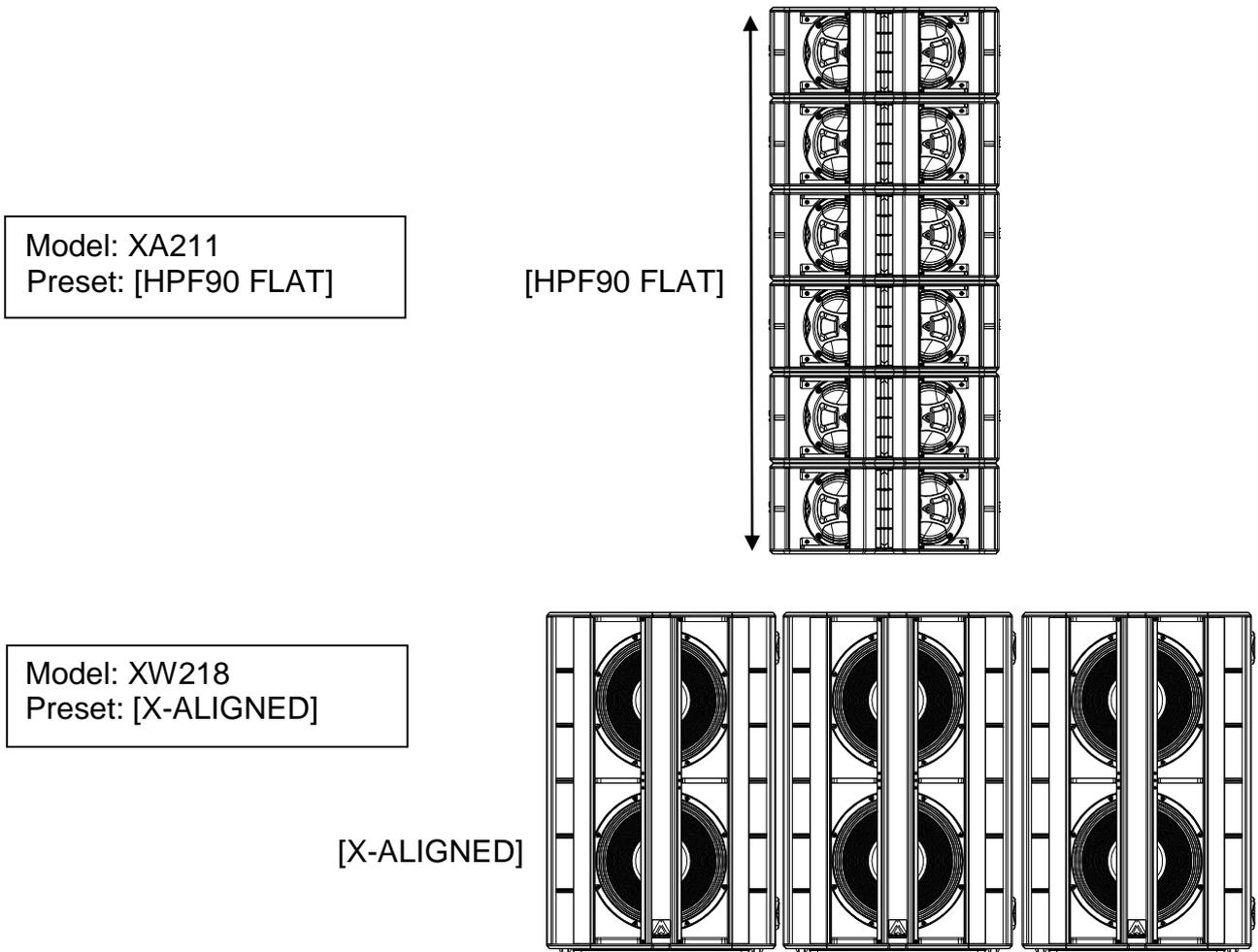
SYSTEM ALIGNMENT

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.



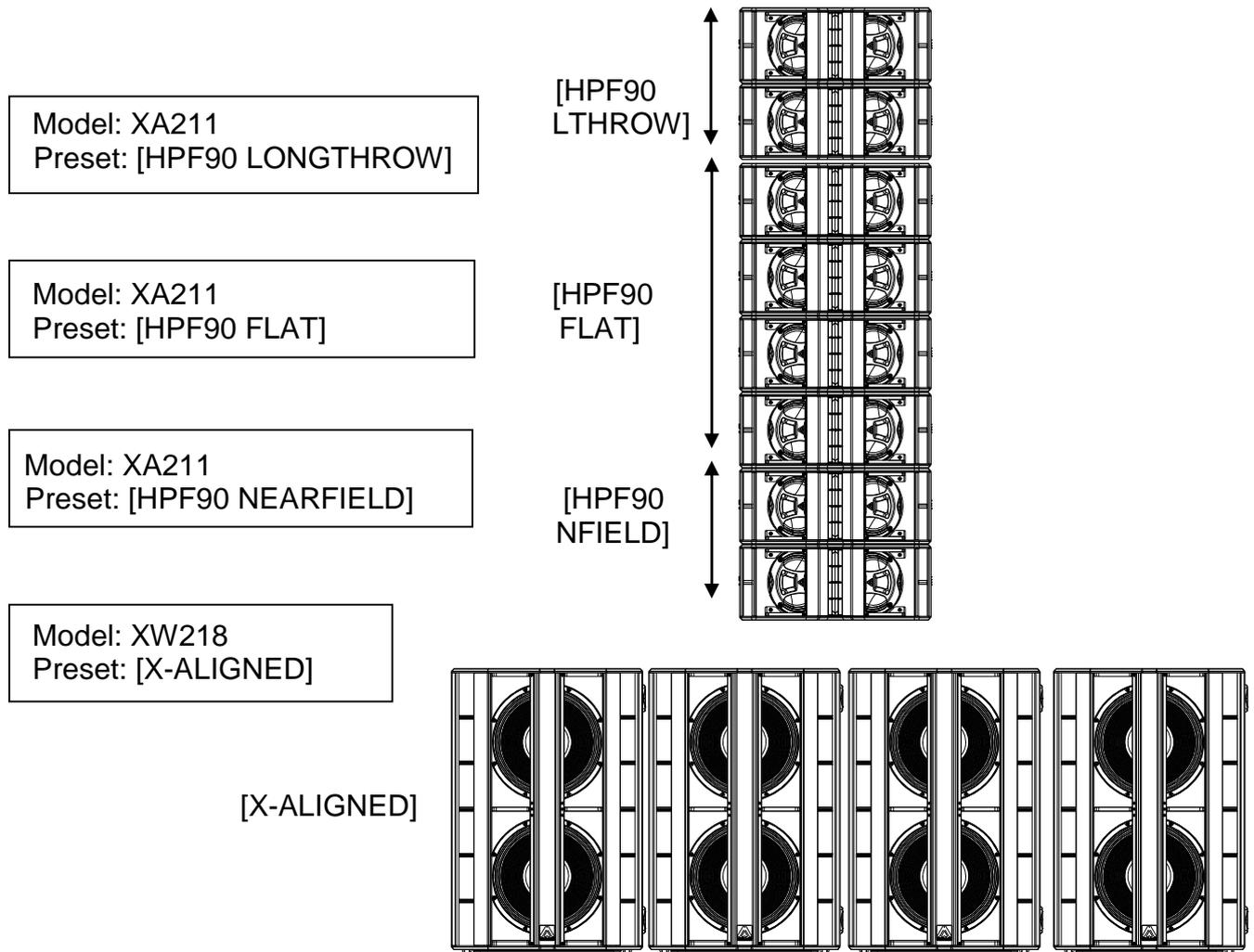
SYSTEM ALIGNMENT

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).

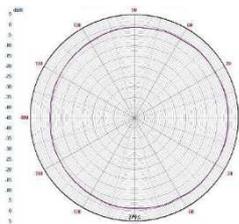


Fig.4. Traditional polar pattern of a subwoofer at 40 Hz

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.

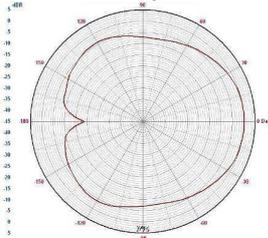


Fig.5. Cardioid pattern

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.

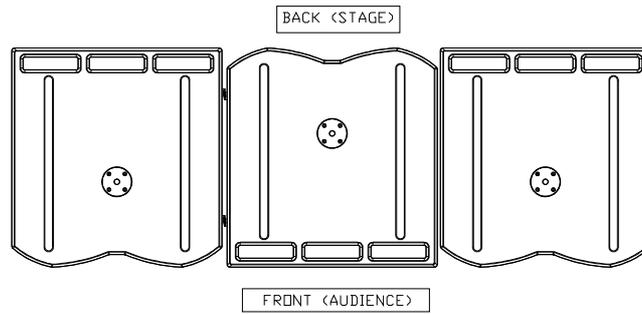


Fig. 6. Cardioid configuration for XW118 subwoofer (stack)



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.

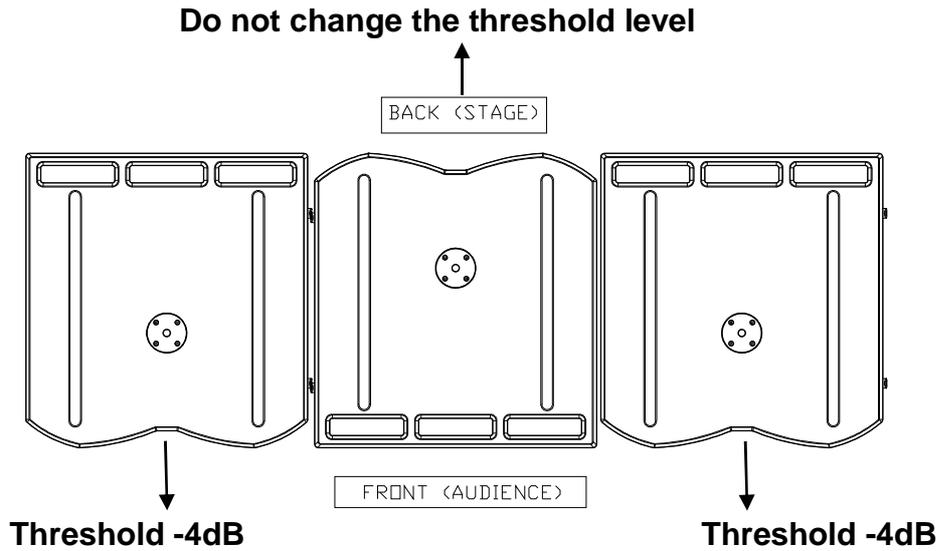


Fig.8. Threshold levels for XW218 subwoofers

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.

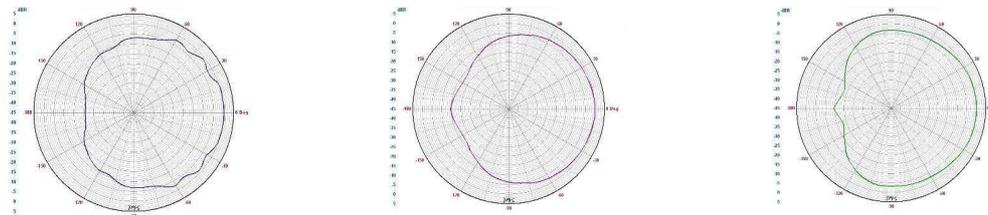


Fig.9. Back energy rejection at 40 Hz / 50 Hz / 63 Hz

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®).

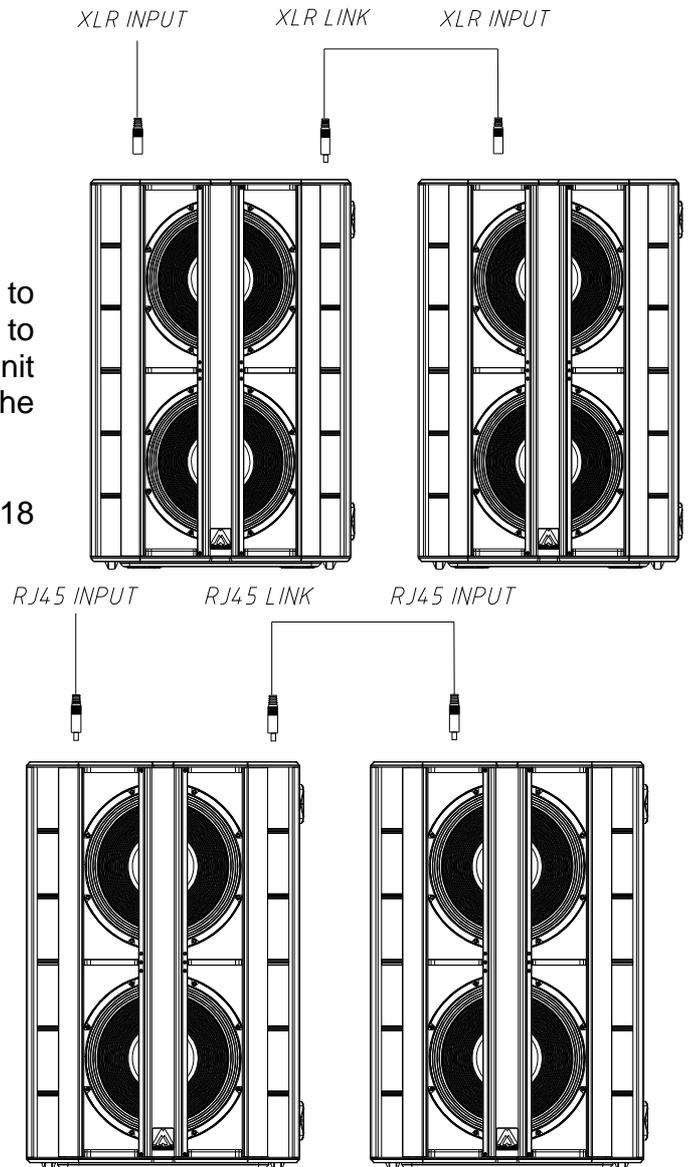


Fig.12. Parallel connection for the XW218 (network). You can link up to eight units when using DANTE networking, or more when not using it.

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.

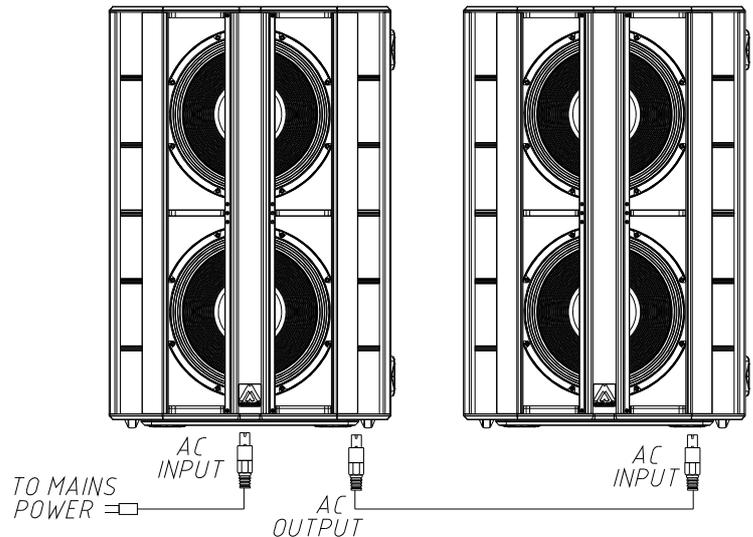


Fig.13. Parallel connection for the XW218 (mains). You can link up to two units.

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.

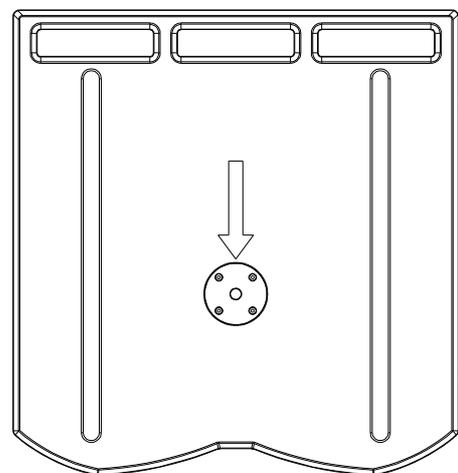
Generally, the cause of such an anomaly tends to be a neutral voltage drop or incorrect connection of the equipment to 400V supply. Whenever the overvoltage LED lights up, check the tension of the electrical phases: other devices in the sound system are also at risk of electrical fault and severe damage

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.



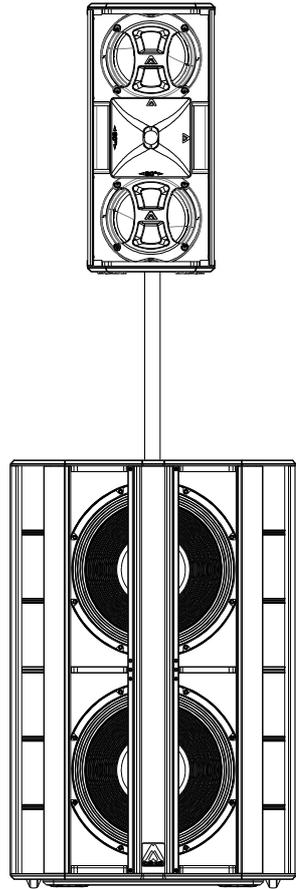


Fig. 14. XW218 socket

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.

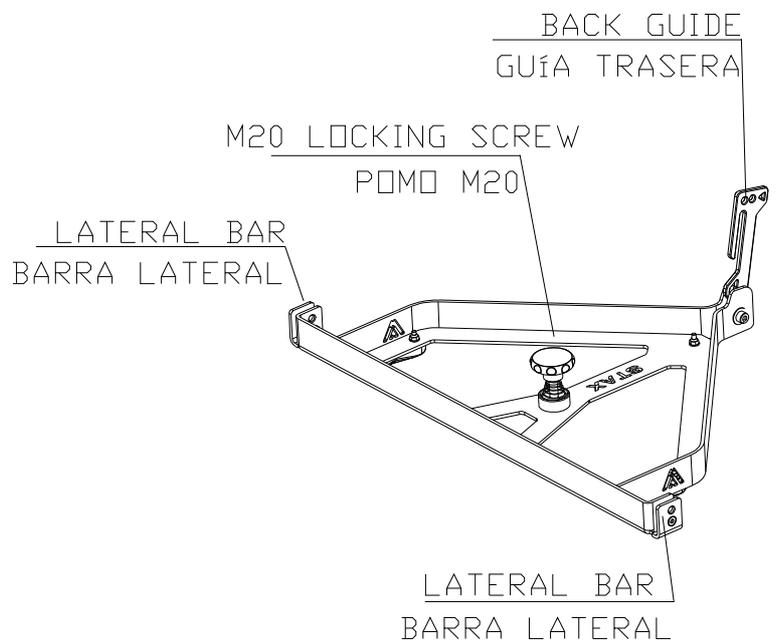


Fig.15. STAX frame stacking

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.

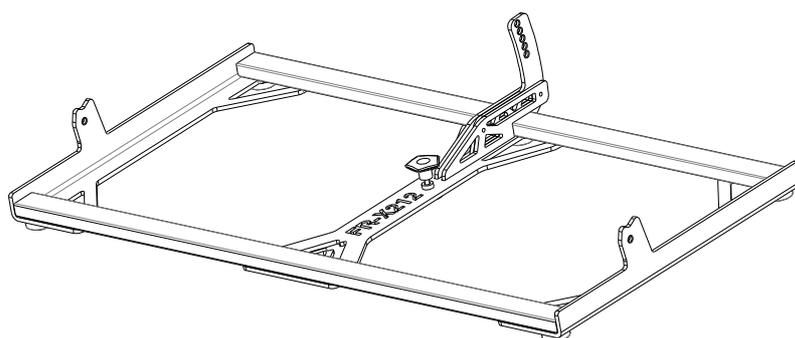


Fig.16. FR-X212 frame stacking

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

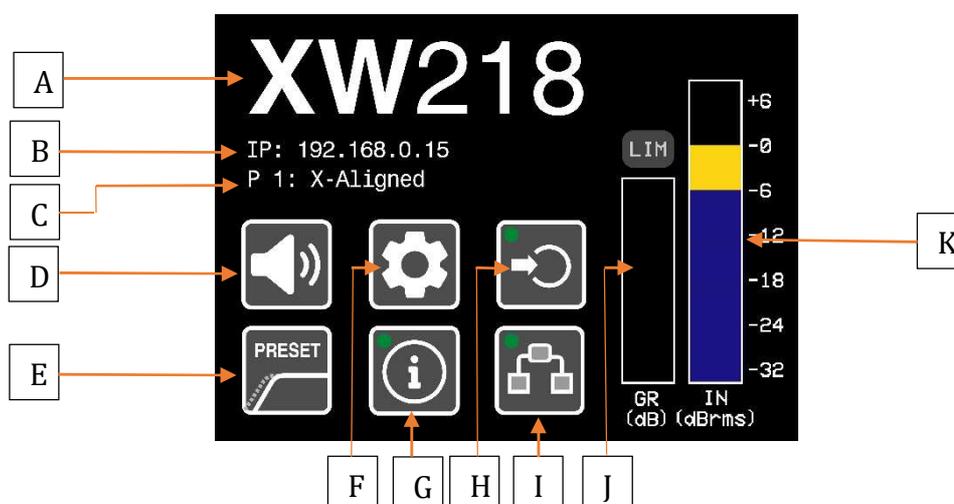
The Amate Audio XW218 unit comes equipped with internal signal processing, featuring an adjustable DSP that can be controlled via touchscreen. The key specifications of the display are:

- TFT-LCD panel
- 320x240 resolution
- 180-degree viewing angle
- 16.7 million colours

I.1. Main screen

When we connect the system, an initial loading screen appears displaying the Amate Audio logo, the firmware version, and the processing version. Once the system is initialized, a welcome screen is shown. This screen includes the speaker model and its serial number.

When the speaker is ready to work, the main screen is displayed, it has the following elements:



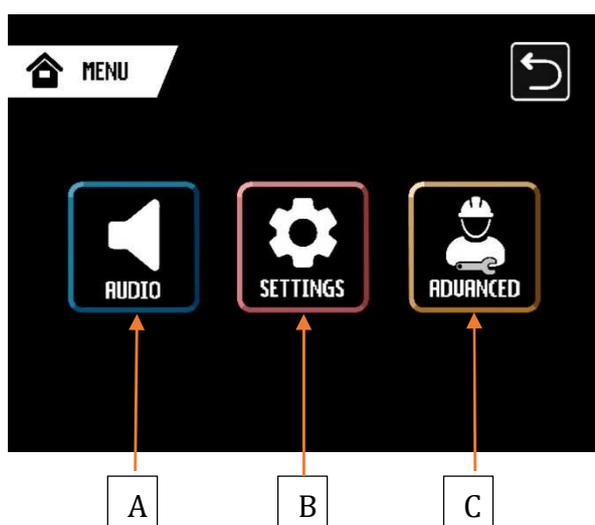
- A. Speaker model
- B. **IP:** IP address of the speaker.
- C. **Preset:** Number and name of the active preset.
- D. **Mute button:** When it is pressed, the button silences the audio output without turning off the amplifiers. This process permit return immediately to initial state when we touch again.
- E. **Preset button:** Quick access to preset selection.

- F. **Configuration button:** Access to the speaker's configuration. There you can configure specific adjustments. Access to this button can be protected by password. The default key is 1234.
- G. **Information button:** Shows information about the active parameters of the speaker. In top-left corner, it has dynamic indicator.
 - a. Green: The device is ready to use.
 - b. Yellow: The device is in "Standby" mode.
 - c. Red: The device is muted.
- H. **Input button:** Indicates what the signal source is. Options include:
 - a. Analog: for XLR input.
 - b. Dante: for RJ-45 digital Dante input.
 - c. Auto: Automatic selection between analogue and digital input.
- I. **Network button:** Access to network configuration. In top-left corner, it has dynamic indicator.
 - a. Green: The speaker is connected to the network.
 - b. Yellow: The speaker is not connected to the network.
- J. **Input Signal Meter:** Indicates the level of the signal input. The level is indicated in decibels relative to the sensitivity of the speaker with a headroom of 6dB. If the signals is over 0dB, a clipping indicator is shown in red.

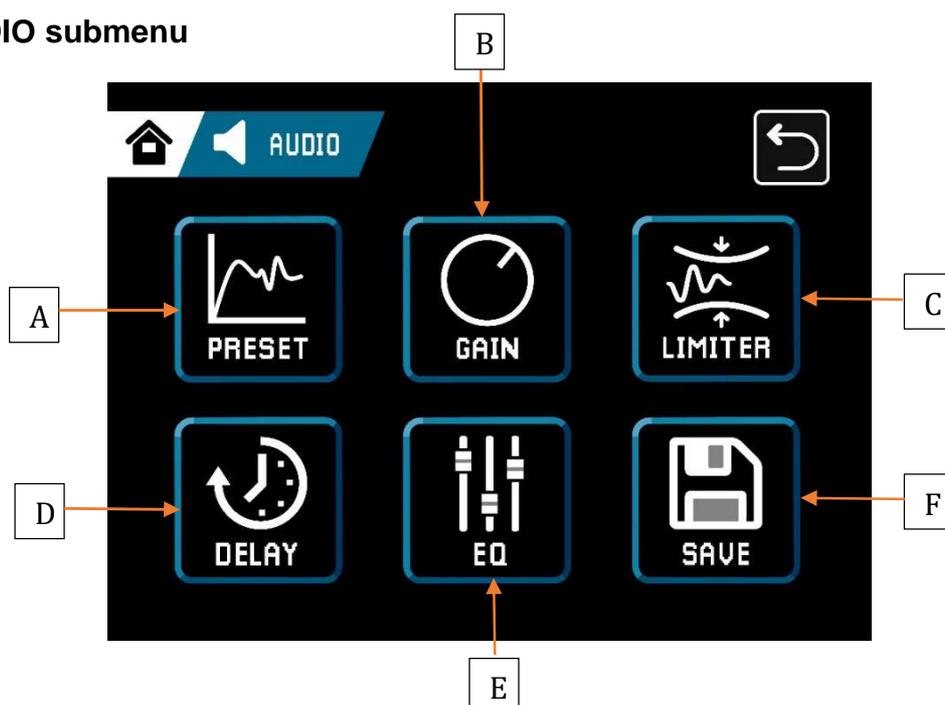
I.2. Main MENU

With the unit unlocked and by pressing the configuration button (gear icon), we access the unit's setting screen.

- A. **Audio:** Adjustment and configuration of the audio signal.
- B. **Settings:** Configuration unrelated to the unit's audio.
- C. **Advanced:** Advanced configuration parameters focused on technical personnel.

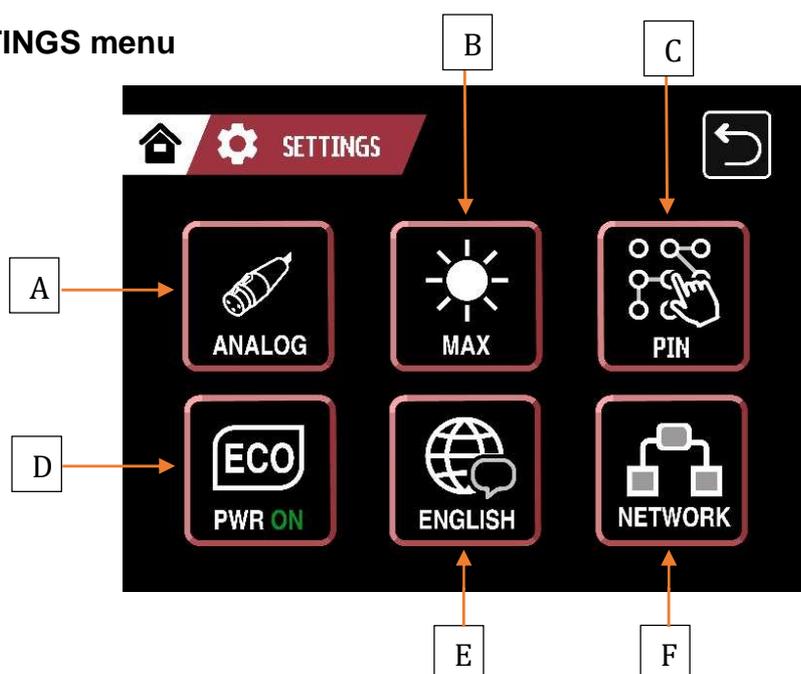


I.3. AUDIO submenu



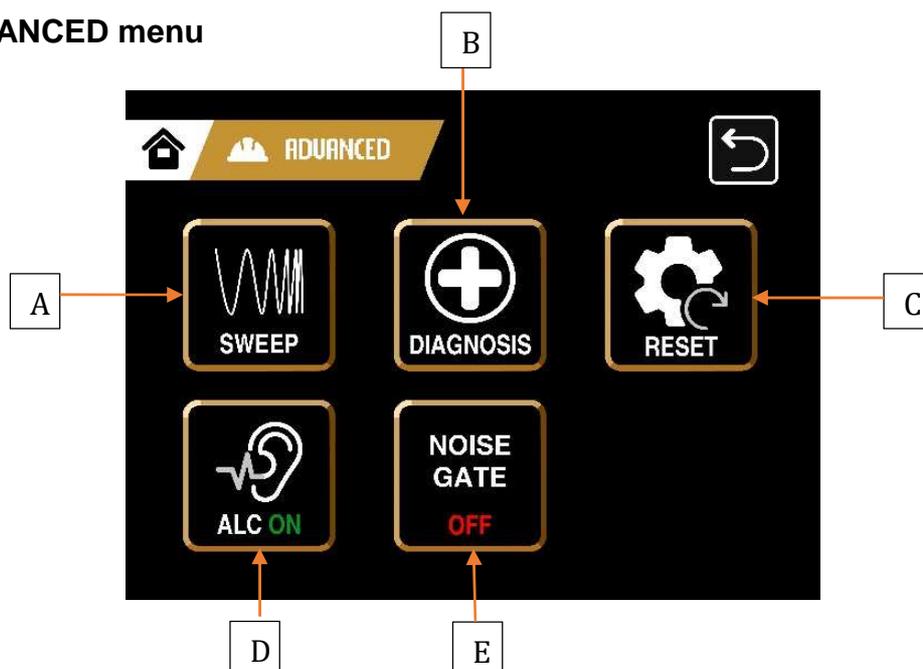
- A. **Preset**: Selection of factory sound presets. The available factory presets depend on each model and can be found on each model user manual.
- B. **Gain**: Control of the input gain using a fader that allows it to be adjusted to the needs of the application. The system can also be muted using the button with the speaker icon.
- C. **Limiters**: Setting the threshold of the integrated limiter. The threshold indicates the level of input signal at which the limiter will start to act. The limitation indicator shows the behaviour of the limiter in real time, displaying the current gain reduction (GR: Gain Reduction).
- D. **Delay**: Adjustment of the delay of the input signal. It can be configured in milliseconds or meters, showing the equivalence between the two. The polarity of the input signal can also be configured.
- E. **Save**: Access to the unit's internal memories. Allows creating a new user preset with the current configuration of the equalizer, delay, gain, and limiter. There are up to a maximum of 24 memories available.

I.4. SETTINGS menu



- A. **Input Selection:** Allows us to choose which input the internal processor will use. The options are ANALOG, DANTE, or AUTO. In AUTO mode, the unit automatically chooses the audio source. In case of conflict (simultaneous use of XLR and Dante connectors), the unit prioritizes the Dante digital signal. If the Dante signal becomes unavailable at any point, the unit automatically switches to the analogue input.
- B. **Screen Brightness:** Three levels of brightness can be selected: MAX (Maximum), MED (Medium), and MIN (Minimum).
- C. **PIN Lock:** Allows setting up a lock on the unit via a PIN code. With PIN lock configured and activated, a locked padlock icon is displayed on the main screen. To unlock the unit, it is necessary to press on the padlock and enter the unlock code.
- D. **ECO Button:** Configures the behaviour of the unit's internal amplification stages.
- PWR ON: The amplification system is operational and ready for immediate delivery of amplified signal.
 - STANDBY: The amplifiers enter a resting state, thus they will not emit a signal even if the unit is powered on.
 - AUTO: The amplifiers remain in rest until an input signal is detected, at which point they become operational.
- E. **Language Selection:** Allows selecting the language of the interface. The options are SPANISH, CATALAN, and ENGLISH.
- F. **Network Button:** Allows configuring the IP address and network mask of the speaker.

I.5. ADVANCED menu



- A. **Sweep:** Acoustic diagnostic of the unit. A sinusoidal wave is emitted that sweeps through the entire audible range. A sweep will be performed for each loudspeaker way. The duration of each sweep is approximately two seconds.
- B. **Diagnosis:** Access to the system information menu. In this menu, we can find information regarding the use of the speaker and data on the current, temperature, and the status of the device.
- C. **Reset:** Resets all the parameters. A pattern is requested as confirmation for the process. Once done, all parameters and settings revert to factory defaults.
- D. **ALC: (available in selected models only)** Allows activating or deactivating the Automatic Loudness Compensation algorithm. This algorithm is based on psychoacoustic studies, which show that the ear loses sensitivity to low and high frequencies as the volume increases. The algorithm compensates for this nonlinear behaviour of the ear, enhancing the presence of low and high frequencies as the signal level decreases. Its use is not recommended for live sound applications. It is ideal for fixed installations or background music systems.
- E. **Noise Gate: (available in selected models only)** Allows activating or deactivating the noise gate. This dynamic processor is used to eliminate possible noises produced by the electroacoustic components of the speaker when it is not reproducing sound.



Great sound
from Barcelona
since 1972

www.amateaudio.com

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 1rst., 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



*Great sound
from Barcelona
since 1972*

XCELLENCE speaker systems have been designed,
engineered and manufactured in Barcelona – SPAIN by

Los **sistemas acústicos XCELLENCE** han sido
diseñados y fabricados en Barcelona – ESPAÑA por

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