



Operation Manual



IBZA Series

IBZA10

Compact Multipurpose Loudspeaker

Version 2.5

Release 2017

Keep these important operating instructions.
Check www.tecnare.com for updates.

General Information

IBZA10 Operation Manual

Ver.: 2.5_UK 12/2017

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The information contained in this manual has been carefully checked for accuracy, at the time of going to press, however no guarantee is given with respect to the correctness.

Exel Acoustics SL accepts no responsibility for any errors or inaccuracies that may appear in this manual or the products and software described in it. Technical specifications, dimensions, weights and properties do not represent guaranteed qualities. As manufacturers we reserve the right to make alterations and modifications within the framework of legal provisions, as well as changes aimed at improving quality.

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IMPORTANT SAFE INSTRUCTIONS

Before using our product, be sure to carefully read the manual and safe instructions. Keep this document with the device all time.

- | | | |
|---|--|--|
| 1 | Read these instructions. | caution around the enclosure with data storage devices such as phones, computers or hard drivers. |
| 2 | Keep these instructions. | |
| 3 | Heed all warnings. | 11 Handles are for moving the system only. |
| 4 | Follow all SAFETY INSTRUCTIONS as well DANGER and OBLIGATION warnings. | 12 Beware of sound levels. Never stand in the immediate vicinity of loudspeaker driven at high level. Professional loudspeaker systems are capable of causing a sound pressure level (SPL) detrimental to human health. Hearing damage can also occur with prolonged exposure to sound: 8h at 90 dB(A), 30 min at 110 dB(A), less than 4 min at 130 dB(A) <i>Source: European Directive relating to the assessment and management of noise 2002/49/CE</i> |
| 5 | Only use attachments / accessories specified by the manufacturer. | |
| 6 | Use only with the cart, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart / apparatus combination to avoid injury from tip-over. | |
| 7 | If the equipment is used in a manner not specified by the Exel Acoustic, the protection by the equipment may be impaired. | 13 When setting up the loudspeaker or loudspeaker stand, make sure they are standing on a firm surface. If you place several enclosures on top of one another, use straps to secure them against movement. |
| 8 | Read the entire Product Information document before exploiting the system. | |
| 9 | Read the Rigging Manual before installing the system. Use the rigging accessories described in the rigging manual a follow the associated procedures. | |

CAUTION: Rigging should only be done by experience professionals.

- 10 This speaker enclosure is capable of creating a strong magnetic field. Please use

DECLARACIÓN DE CONFORMIDAD

DECLARATION OF CONFORMITY

EXEL ACOUSTICS SL

CL Encinar, 282. Polígono Industrial Monte Boyal. 45950 – Casarrubios del Monte (Toledo), España (Spain).

Declara que el producto **IBZA10** y sus respectivas opciones, cumple con las Directivas:

*Declare under our sole responsibility that devices in the **IBZA10** range of products, comply with relating Directives:*

- (1) Directiva de Baja Tensión - 2006/95/CE
- (2) Directiva de Compatibilidad Electromagnética - 2004/108/CE
- (3) Directiva **RoHS** - 2011/65/UE
- (4) Directiva **RAEE** - 2012/19/UE

- (1) *Low Voltage Directive 2006/95/CE*
- (2) *EMC 2004/108/CE*
- (3) *RoHS Directive 2011/65/UE*
- (4) *WEEE Directive 2012/19/UE*

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1 Introduction

1.1 Welcome to Tecnare

Thank you for choosing the high-quality Tecnare® **IBZA10 System “Made in Spain”** from **EXEL ACOUSTICS SL**.

Please spare a little time to study the contents of this manual, so that you obtain the best possible performance from this unit.

All Tecnare® products are carefully engineered for world-class performance and reliability.

If you would like further information about this or any other Tecnare® product, please contact us. We look forward to helping you in the near future.

As part of a continuous evolution of techniques and standards, Exel Acoustics SL as manufacturer of Tecnare® products reserve the right to change the specifications of its products and the content of its documents without prior notice.

Updates and supplementary information are available on the Tecnare® website:

<http://www.tecnare.com>

Tecnare Technical Support is available at:

- (T): +34 918 170 110 - +34 918 171 001
- (e-mail): support@tecnare.com

Thank you again for placing your confidence in Tecnare® products.

1.2 IBZA Series

IBZA Series is the ultimate reference for rental productions, fixed installations and dance clubs environments. It is a combination of high-end audio, sound quality, stunning aesthetics, extreme sound pressure level and reliability. IBZA is a family of distinct format of loudspeaker systems, engineered for different short-throw applications, including FOH systems, distributed systems, side-fill monitors, complementary fills and, of course, dance environments, where high-output, low-distortion, and the highest quality sound are required.

The series is formed from:

- **IBZA P204**, passive ultra-compact loudspeaker, 120° axis-symmetric, 80Hz-20KHz.
- **IBZA6**, passive compact loudspeaker, 80° axis-symmetric, 82Hz-20KHz.
- **IBZA6 Plus**, passive ultra-compact loudspeaker, 70° axis-symmetric, 85Hz-18KHz.
- **IBZA8**, passive compact loudspeaker, 110° axis-symmetric, 65Hz-18KHz
- **IBZA10**, passive compact loudspeaker, 70°x50°, 45-18KHz
- **IBZA12**, passive/active enclosure, (50°x100°)x60°, 56Hz-18KHz
- **IBZA15**, passive/active enclosure, 80°x50°, 48Hz-18KHz

IBZA Series constitutes a broad range of point source, full range loudspeakers that providing high SPL, different directivities patterns and a good sonic performance off-axis.

The IBZA Series is suited to various sound reinforcement applications as a main or complementary system.

IBZA Series enclosures are easy to integrate, combining sonic character with style. Its aesthetic appearance makes it ideal for the most demanding architectural environments.

DP Series Processors and **T-Series** amplified controllers are the heart of the system. Thanks to their dedicated factory presets, they constitute an extremely advanced and precise drive system for the enclosures.

Applications:

- Dance Clubs.
- Theatre, corporate and live events.
- House of Worship.
- Touring.
- Live music venues.

Main Characteristics:

- Built in proprietary hardware for simple, fast and safe rigging.
- Enclosures made with the latest techniques ensuring a perfect and rigid construction.
- Weatherized finish is provided, as the cabinet is coated with rugged Durawound texture finish and protected with specially treated grills.
- 16mm or 18mm birch plywood. Finished in black semi-matt textured Durawood weatherized coating.
- Powder coated perforated steel grid with acoustically transparent reticulated foam.
- Max SPL: Up to 133dB Continuous.

1.2 The IBZA10 Compact Loudspeaker

The IBZA10 is a trapezoidal compact two-way full-range loudspeaker. The LF/MF section comprises a 10-inch loudspeaker loaded in a vented-bass cabinet and the high frequency section utilizes a 1-inch exit compression driver. The horn allows quick rotation to provide 70° x 50° coverage patterns in either horizontal or the vertical plane.

IBZA10 has an exceptional power/size ratio, great clarity in sound reproduction and a highly aesthetics. The wooden enclosure features a recessed Neutrik® SpeakON® connectors and threaded inserts, allowing the use of a 3mm steel bracket for flying or wall/ceiling-mount purposes (optional *TUB-10*) and pole mount socket Optional “Array Frames” are also available to array suspension (TAF-10 and TAF3-10. *See all rigging options in the rigging manual*).

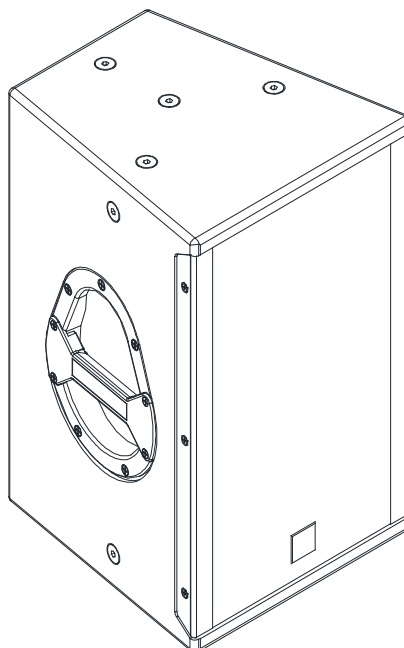
Dedicated preset for [DP Series](#) processors or [T-Series](#) amplifiers are available to operate the **IBZA10** in full-range mode or combined with Tecna® subwoofers.

The full-range compact IBZA10 loudspeaker offers total versatility between all types of near-field listening applications: stage monitoring; distributed systems; in-fill/near-fill/delay etc; PA with or without subwoofers.

IBZA10 is designed for small to medium size venues or as a distributed system. Its compactness and sonic performance make IBZA10 the perfect loudspeaker for applications where unobtrusiveness and high quality sound reproduction are at a premium.

In full-range mode with or without processor the IBZA10 is perfect for speech or vocal, such as conferencing or place of worship. With a processor, it offers highly accurate music reproduction. Combined with Tecna® subwoofers, IBZA10 is capable of high level performance in mid-sized venues.

Available series in a grey colour or white custom colour, the IBZA10 can be easily integrated into any building style for ultimate discretion, satisfying the most demanding architectural needs. Rigging options include wall mount, ceiling-mount and pole-mount in various orientations for integration into any possible situation.

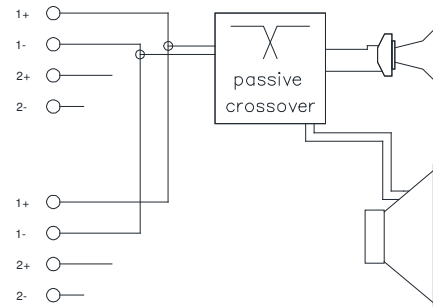


1.3 Connections

IBZA10 loudspeaker utilizes Neutrik® SpeakON® connectors. There are two NLT4 connectors on the rear of each IBZA10. These connectors mate with Neutrik® NL-4 or NL-4 compatible in-line cable connectors. Only two pins (1+/1-) of both connectors are wired in parallel. The following subsections describe the electrical connections. Other configuration should be requested at the purchase time.

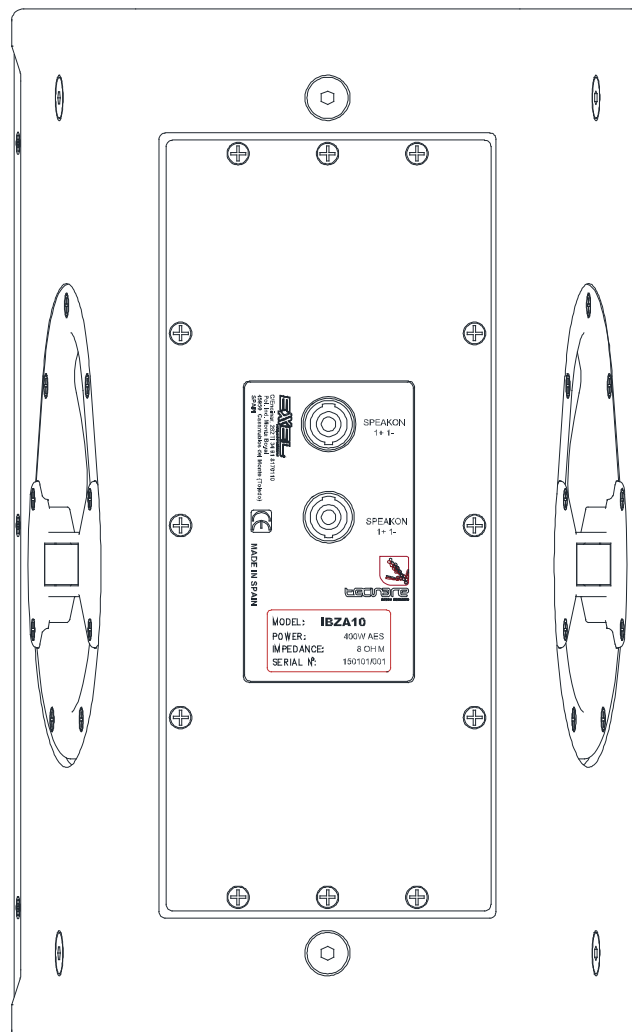
The IBZA10 uses the pin assignment 1+/1+.

Using one as the input, the second connector allows for direct connection to a second cabinet in parallel.



Internal pinout for IBZA10 enclosures

IN speakON® point	1+	1-	2+	2-
Connection	LF +	LF -	NC	NC



1.4 Processing and Amplification

Only operate Tecnore® loudspeaker with a correctly configured Tecnore preset. Tecnore offer a complete solution that guarantees the highest level of performance. A complete range of controllers, amplified and amplified controller with DSP are available to get this objective. Otherwise, there is a risk of damaging the loudspeaker components.

1.4.1 Processing

There are two options using our digital controllers our **DP2696** or our **DP4896**. The options vary depending on the final application. *Refer to DP2696 or DP4896 user manual.*

1.4.2 Amplification

To power IBZA Series, Tecnore recommends amplifiers with the power ratings enough to feed the loudspeakers. For high power or live applications, it is recommended to oversize the amplifiers relative to the nominal AES output of the loudspeakers. A lower power amplifier will not reduce the chances of driver damage due to over-excitation, and may actually increase the risk of thermal damage due to sustained clipping.

In certain specific cases it is possible to slightly under-power the subs or loudspeakers as long as the amplifier will not be driven to its limits.

In any case, the Tecnore processors should be deployed in front of the amp to ensure that the amplifiers do not go into clip.

The **DP4896** processors also include:

- Virtual Xover Limiter for passive systems
- Thermal protection from power surges or overload
- Excursion displacement protection

The **T10-44/T6-44** and **T-48 Series** amplifier is the ideal companions for maximum performance of the IBZA Series loudspeakers. This amplifier controller with DSP offer a complete both preset and protection solution for any application.

2 Loudspeaker Configuration

2.1 Configurable Asymmetrical Horn

The IBZA10 loudspeakers are designed for standing, vertical and horizontal operation. A variety of accessories is available from Tecna® to securely attach the loudspeaker, e.g. on stands or suspended horizontally or vertically from trusses and motor lifts.

In some situations, it may be advantageous to switch the coverage of the high frequency range. For this purpose the rotatable horn is an important feature of the **IBZA10**. The horn can be rotated in four different positions and can be useful for specialized applications such as complex arrays, systems designed with CAD software, etc.



Ensure that the loudspeakers are securely attached to prevent personal injury and property damage.



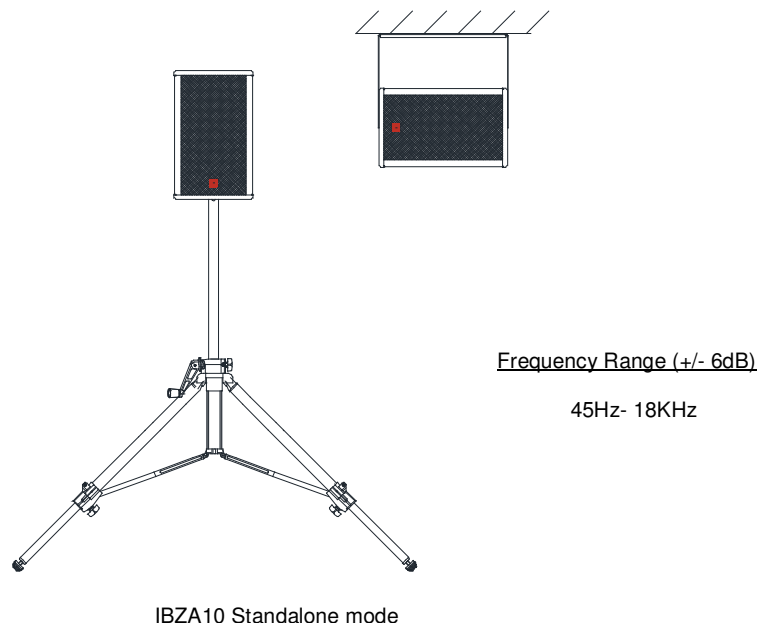
NOTE

TECNARE recommends using only the accessories specified by TECNARE to secure the loudspeakers.

2.2 Point Source

In this configuration the system operates over the nominal frequency range of the enclosure.

IBZA10 enclosure is driven by the PA4.450, PA900 or PA2100 amplifier with the DP Series Processor or T-44/T-48 Series amplifier controller both with factory preset.

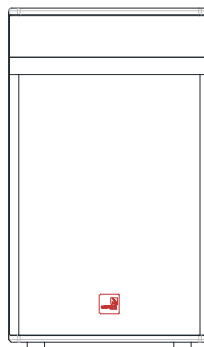
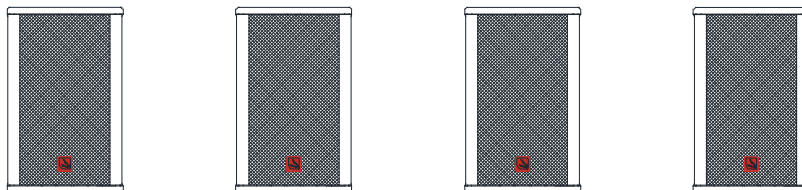


2.3 Point Source with low-frequency element

In this configuration, the frequency response of the IBZA10 is extended in the low end.

IBZA10 enclosure is driven by the PA4.450, PA900 or PA2100 amplifier with the DP Series Processor or T-44/T-48 Series amplifier controller both with same factory preset as in point source configuration. The subwoofer will be operating with its corresponding factory preset. The upper frequency limit must be 100 Hz for an optimal acoustic coupling with the enclosure.

If your IBZA10 loudspeakers and subwoofers are separated by a greater distance - or delay must be used between them - a measurement system such as *SMAART* should be used to determine the correct delay and polarity.



IBZA10 + SW-115

Frequency Range (+/- 6dB)

38- 18KHz

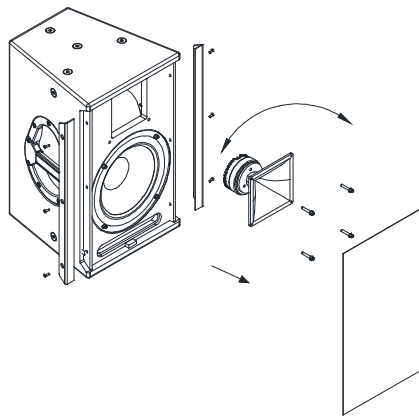
Recommended ratio

1xSW-115: 4xIBZA10

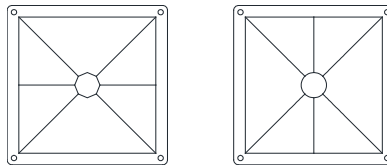
2.4 Rotating the Horn

You can easily re-orient the IBZA10 rotatable horn to its 70° x 50° configuration. To rotate the IBZA10's horn, perform the following steps:

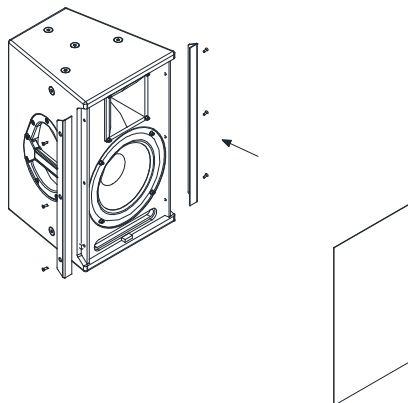
1. Place the IBZA10 loudspeaker with the front grill facing up. Ensure that the working surface is clean with a non-slip finish.
2. Remove the six (6) metal reinforcement profiles screws (three per side) from IBZA10 using a hex key.
3. Carefully remove the grille.
4. Release the four (4) screws of the horn using a hex key. Pull the horn and the compression driver upward out of the loudspeaker enclosure, being careful not to over-stress its wiring.



5. Check that the seal between the enclosure and horn is properly seated.
6. Rotate the horn carefully on the desired position and place the horn and driver back into the cabinet. It will fit comfortably snug.



7. Replace the four (4) horn flange screws.
8. Carefully replace the grille cover and the two (2) metal reinforcement profiles with its six (6) screws.



2.5 Recommended Speaker Cables

Choosing the right wire gauge for your installation is utmost importance to ensure you will get the maximum potential of your system.

The two primary things resistance affects in the amplifier-to-loudspeaker connection are: insertion loss and damping factor, both of which are dependent upon cable resistance. Too small a cable section will increase both its serial resistance and its capacitance; this reduces the electrical power delivered to the loudspeaker and can also induce response (damping factor) variations.

INSERTION LOSS

Insertion loss is the measure of the loss of load power at the speaker due to excessive resistive losses of the cable or any additional component attached between the amplifier and the loudspeaker. We typically express this loss in decibels (dB) using the following formula:

$$IL = 20 \bullet \log \left(\frac{R_{load}}{R_{load} + R_{cable}} \right)$$

DAMPING FACTOR

Damping factor is a ratio of rated loudspeaker impedance (Z_L) to the source impedance (Z_s). In this case our source impedance is (R_{cable} + R_{amplifier}).

$$\text{Damping Factor} = Z_L / Z_s$$

The table below indicates the cable valour recommended by Tecna®.

cable cross-section			Recommended maximum length					
			8 Ω		4 Ω		2 Ω	
mm ²	SWG	AWG	m	ft	m	ft	m	ft
2,5	15	13	30	100	15	50	10	33
4	13	11	50	160	25	80	17	53
6	11	9	74	240	37	120	25	80
10	9	7	120	390	60	195	40	130

3 Amplifier Configuration

Tecnavare® Sound Systems recommended operating the **IBZA10** loudspeaker together Tecnavare loudspeaker controllers.

Tecnavare® only recommends using preset/amplifier developed by *Tecnavare*; otherwise there is a risk of damaging the loudspeaker components. *DP Series Loudspeaker Controller*, *PA Series amplifier* and *T-Series amplifier* are ideal for this purpose.

Ensure that the right preset was selected before connecting the loudspeaker with the amplifier.

Operating with an incorrect preset can damage part of the loudspeaker.

Ensure that the amplifier is properly size according to requirements. Under-power or oversized power amplifier without the supervision of an expert may damage the loudspeaker.

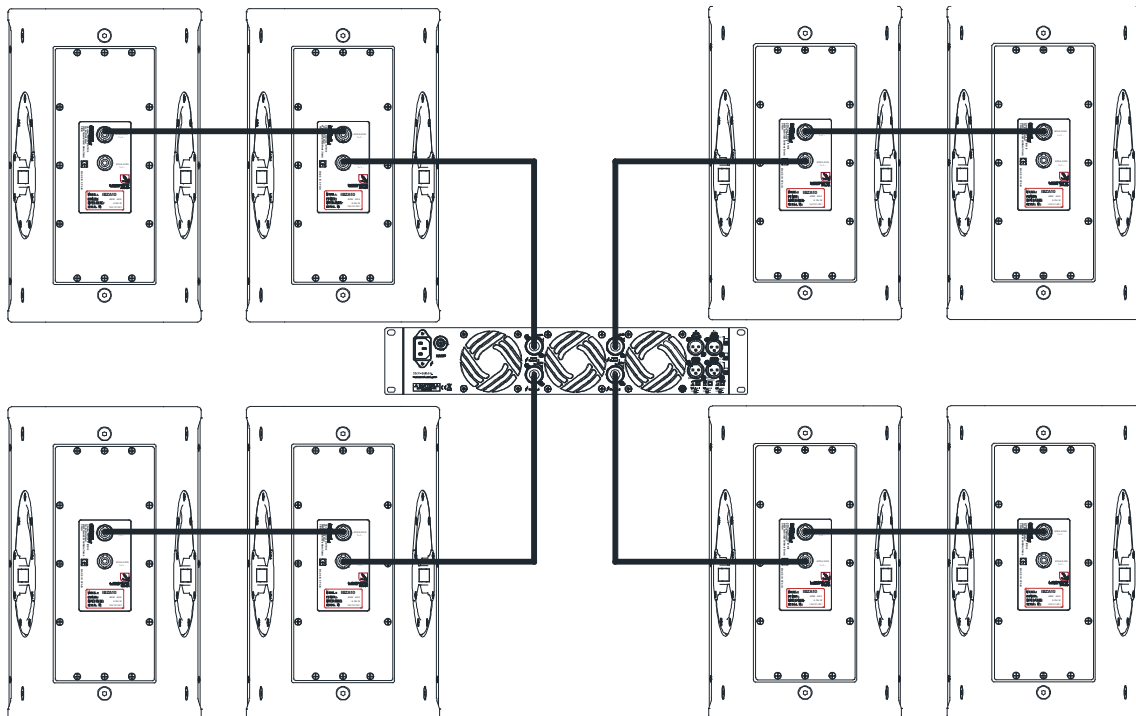
Please note the technical specification section.

3.1 Connection to PA4.450/PA4.1500

MAXIMUM OF 4 ENCLOSURES PER PA4.450/4.1500

2 x IBZA10 can be connected to each output channel on the PA4.450/PA4.1500. Therefore, a single PA4.450/PA4.1500 amplifier controller can drive up to 8 enclosures.

Impedance load: 8Ω for 1 enclosure, 4Ω for 2 enclosures.

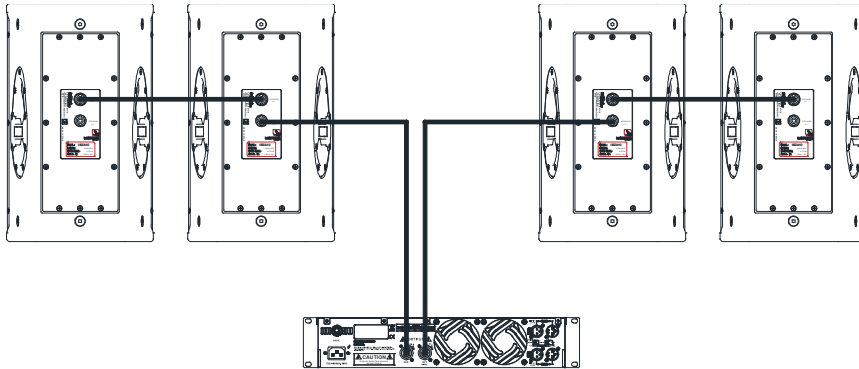


3.2 Connection to PA900/PA2100

MAXIMUM OF 4 ENCLOSURES PER PA900/2100

2 x IBZA10 can be connected to each output channel on the PA900/PA2100. Therefore, a single PA900/PA2100 amplifier controller can drive up to 4 enclosures.

Impedance load: 8Ω for 1 enclosure, 4Ω for 2 enclosures.

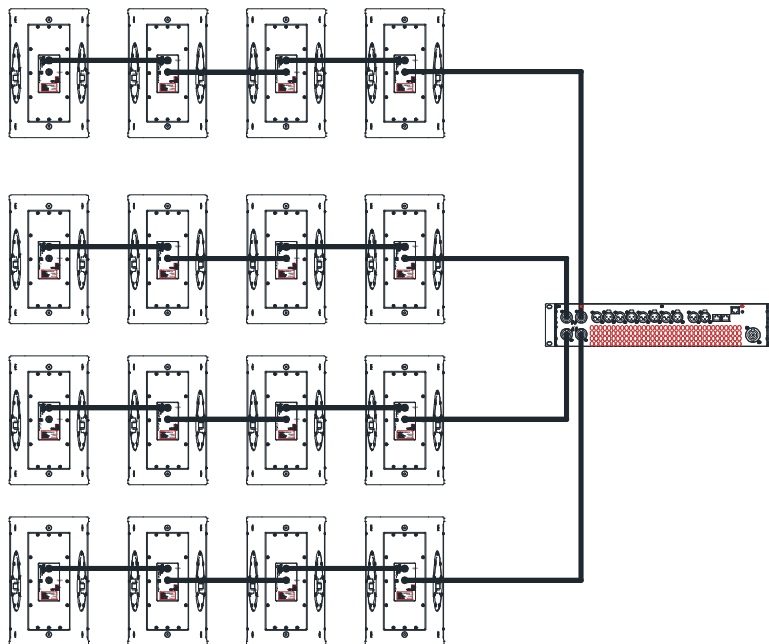


3.3 Connection to T-44 Series

MAXIMUM OF 16 ENCLOSURES PER T20-44

4 x IBZA10 can be connected to each output channel on the T-44/T-48 Series amplifier. Therefore, a single T-44 amplifier controller can drive up to **16** enclosures. A single **T-48** amplifier controller can driven **32** enclosures

Impedance load: 8Ω for 1 enclosure, 4Ω for 2 enclosures, 2Ω for 4 enclosures.



T-44 Series Amplifier

4 Integrating IBZA10 Using Subwoofers

4.1 Integrating IBZA10 Loudspeakers Systems with TecnaRE Subwoofers

An **IBZA10** loudspeaker system can be deployed in combination with TecnaRE's subwoofers like a **SW115**, **SW118M**, **SW-215**. These subwoofers can achieve very low frequency response extending system response appreciably and increasing the overall acoustic power of a system in the lowest frequencies.

The ideal ratio of IBZA10 loudspeakers to subwoofers depends on the subwoofer model, configuration of the system, the application, and the frequency content of the signal being reproduced.

For most application, a ratio of two IBZA10 for each SW-115 or SW-118M subwoofer and four IBZA10 for each SW215 subwoofer yield good results in frequency response and headroom.

4.2 Signal Delay

If IBZAs loudspeaker and subwoofers are used in their full-range configuration together DP-Series Loudspeaker controlled or T-Series Amplifier, use the factory preset setting if they are co-planar or near to each other.

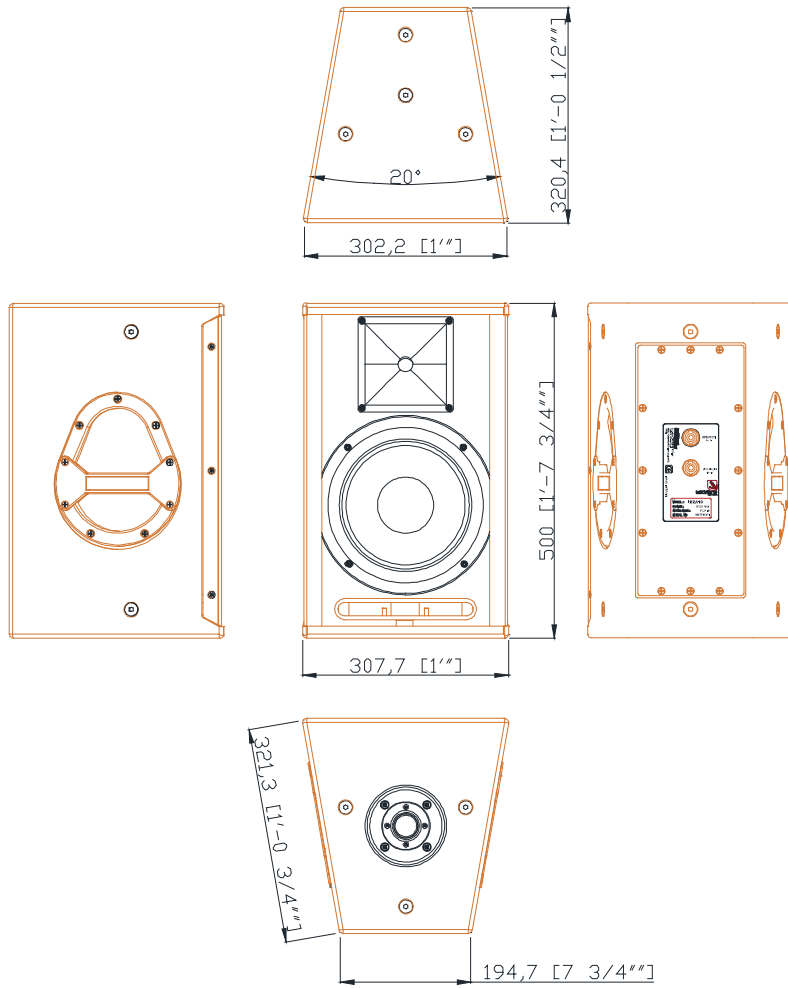
For other configuration or if they are separated by a great distance it will usually be necessary to determine the signal delay and polarity setting with a measurement system such as SMAART audio analyzer.

NOTE: If the subwoofer's amplifier/DSP Limit LED begins to light before reaching the required SPL, consider adding more subwoofers to meet the SPL requirements without exposing the drivers to excessive heat and excursion.

5 Technical specifications

IBZA10 FULL-RANGE COMPACT LOUDSPEAKER SPECIFICATIONS

ACOUSTICAL	
Operating Frequency Range	45Hz - 18 kHz±4dB, measured on axis.
Axial Sensitivity	94 dB (1w/1m)
Calculated SPL	120 dB continuous/126 Peak
Nominal Dispersion	70° x 50° attached to a rotatable CD horn
Power Handling	400 W AES / 800 Continuous
COMPONENTS	
Low Frequency	1 x 10-inch cone driver neodymium magnet, direct radiation, bass-reflex Nominal impedance: 8Ω Voice coil size: 2.5-inch Power Handling Capability: 300 W AES / 600 W continuous <i>Note:</i> Power Handling measured using AES Standards= 2 hours test made with continuous pink noise signal (6 db crest factor).
High Frequency	1x1-inch compression driver. PM4 Diaphragm material Nominal impedance: 8Ω Throat diameter: 25mm / 1.75-inch (44.3 mm) voice coil diameter Power Handling Capability: 100 W AES / 200 W continuous <i>Note:</i> Power Handling measured using AES Standards= 2 hours test made with continuous pink noise signal (6 db crest factor).
AUDIO INPUT	
Connectors	IN: 1 x NL4 SpeakON® LINK: 1 x NL4 SpeakON®
Wiring	Pin 1+/-: Input Signal ; Pin 2+/- : NC
PHYSICAL	
Enclosure	16mm birch plywood. Finished in Polyurea surface.
Protective Grille	Powder-coated perforated steel with acoustically transparent reticulated foam
Rigging and handling	2xhandle, 5 x M10 insert for TUB-I10 U-Bracket and Horizontal Array Frame. A pole mount socket on the bottom. See the rigging manual before installing and additional information. Use the rigging accessories described in the rigging manual and follow the associated procedures.
Dimensions (HxWxD)	500mm x 302mm x 320mm (19.68" x 11.89" x 12.6")
Weight	15 Kg. (33.6 lbs)
Custom finish	White code available on request Without charge. RAL code on special order.



IBZA10 Dimensions

Reinventing The Rules



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IBZA10 Operation manual

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