



Operation Manual

V 1.0



IBZA Series

IBZA6HZ

Ultra-Compact Multipurpose Loudspeaker

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

General Information

IBZA6HZ Operation Manual

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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 **IBZA6HZ** y sus respectivas opciones, cumple con las Directivas:

*Declare under our sole responsibility that devices in the **IBZA6HZ** 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

SYMBOLS USED

		
Important operating instructions	Additional information	OBLIGATION. This instructions must be strictly followed
Pour indequer important Instructions	Information complémentaire	Obligation. Cela doit être strictement instructions Suivi
Wichtige Betriebsanweisung oder Gebrauchsanleitung	Informationen. Zusätzliche Informationen	Pflicht. Diese Anweisungen müssen strikt befolgt
Importantes instrucciones operativas	Información complementaria	Obligación. Estas instrucciones deben ser estrictamente seguidas

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1 Introduction

1.1 Welcome to Tecnare

Thank you for choosing the high-quality Tecnare® **IBZA6HZ 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.
- **IBZA6HZ**, passive compact medium impedance speaker, 70° axis-symmetric, 110Hz-20 KHz.
- **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.

The **DP Series Processor** 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.

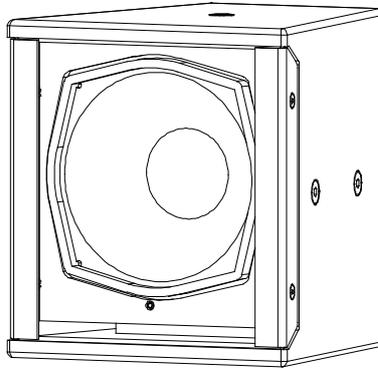
1.3 The IBZA6HZ Compact Loudspeaker

The **IBZA6HZ** is a trapezoidal compact loudspeaker designed to provide high-quality sound and reliable performance for distributed systems. Housed in a wooden enclosure, the IBZA6HZ is especially suitable for installations involving space limitations and which long distance cables should be using. The exclusive special designed loudspeaker, 6½-inch cone transducer medium impedance, loaded in a vented-bass cabinet delivers a maximum peak SPL of 100 dB and has a wide operation range of 110Hz to 20kHz with very low distortion, providing an extremely coherent coverage through 70° conical field.

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-16P*). Dedicated preset for [DP Series](#) processors or [T-Series](#) amplifiers are available to operate the **IBZA6HZ** in full-range mode or combined with Tecna® subwoofers.

In full-range mode with or without processor the IBZA6HZ is perfect for speech and vocal applications such as conferencing, TV studios, shopping centre, etc. With a processor, it offers highly accurate music reproduction. Combined with Tecna® subwoofers, IBZA6HZ is capable of high level performance in a variety of applications.

Available series in a grey colour or white custom colour, the IBZA6HZ 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.



1.4 The IBZA6HZ Technology

Should be taken into account that in installations where the distance from amplifier to the loudspeakers is too long, a considerable amount of resistance coming from the wire should be added to the loudspeaker nominal impedance. That resistance can increase to the point that signal loss and degradation could occur, degrading amplifier's total power capacity, and resulting into low-quality sound.

This is very typical and illustrates the substantial loss of power found in many public address/sound reinforcement systems when the loudspeaker is some distance away from the amplifier.

Currently there are basically two solutions to this problem.

The first solution is to use a much larger wire. These will reduce resistance, but won't allow connecting too many speakers to the same wire.

A second option that is commonly used in the professional sound reinforcement industry is to use a "high impedance" or line matching transformer design. When using the high z, or transformer based system we must remember that there are always low and high frequency response limitations and distortion effects when we apply low frequency signals near the rated power limit of the transformer. For this reason the transformer system requires a high order high pass filter to remove low frequency signals.

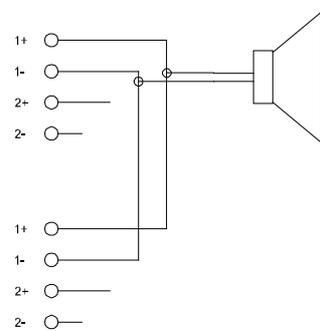
In *Tecna®* we have developed a third option, which has substantial benefits. Thanks to its special medium impedance design (40ohm), the **Tecna IBZA6HZ** offers, for distributed systems, a high-quality solution, where up to **16** loudspeakers (using 2-ohm amplifiers) could be connected in parallel. Placing the loudspeakers far away from the amplifiers will not produce such kind of power losses caused by increase wire resistance or the decrease of sound quality. In addition using low-impedance amplifiers will always benefit a high quality sounding system, compared to matching transformer design, without limitations on frequency bandwidth.

1.5 Connections

IBZA6HZ loudspeaker utilizes Neutrik® SpeakON® connectors. There are two NLT4 connectors on the rear of each IBZA6HZ. 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.

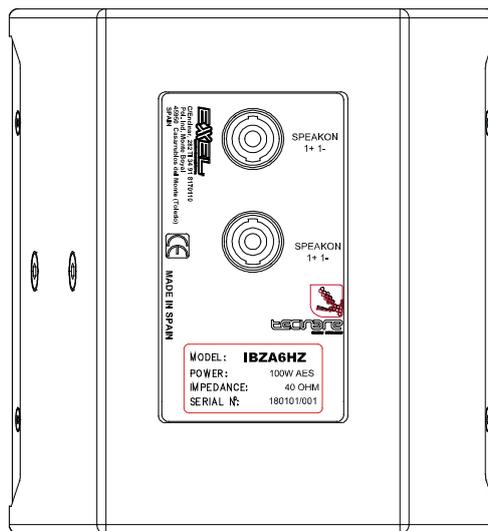
The IBZA6HZ uses the pin assignment 1+/1+.

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



Internal pinout for IBZA6Plus enclosures

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



1.6 Processing and Amplification

Only operate Tecnaire loudspeaker with a correctly configured Tecnaire preset. Tecnaire 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.

1.3.1 Processing

There are two options using our digital controllers. The **DP2696** or **DP4896** are the approved processor for use with IBZA6HZ. The options vary depending on the final application. Refer to *DP2696* or *DP4896* user manual.

You may obtain the settings from the DP Series at <http://www.tecnaire.com> website

1.3.2 Amplification

To power IBZA Series, Tecnaire 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-excursion, 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 Tecnaire processors should be deployed in front of the amp to ensure that the amplifiers do not go into clip.

The **TSeries** amplifier or **DP4896** processors also include:

- Virtual **X**over Limiter for passive systems
- Thermal protection from power surges or overload
- **Xmax** Excursion displacement protection

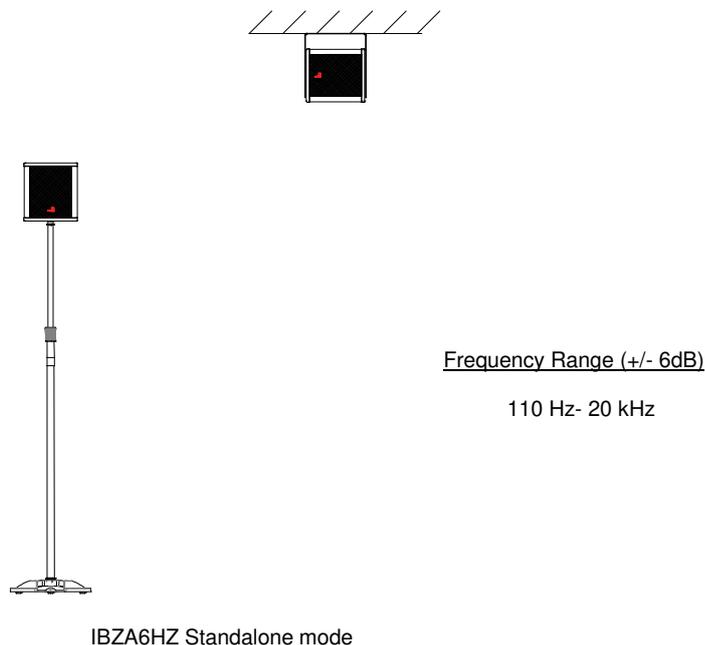
The **T10-44/T6-44** and **T-48 Series** amplifier is the ideal companion for maximum performance of the IBZA Series loudspeakers. These *Advanced System Amplifiers* controlled with DSP offer a complete both preset and protection solution for any application.

2 Loudspeaker Configuration

2.1 Point Source

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

IBZA6HZ enclosure is driven by the PA4.1500, PA3000 amplifier with the DP Series Processor or T-44/T-48 Series amplifier controller both with factory preset.



2.2 Point Source with low-frequency element

In this configuration, the frequency response of the IBZA6HZ is extended in the low end.

IBZA6HZ enclosure is driven by the PA4.1500, PA3000 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 125 Hz for an optimal acoustic coupling with the enclosure.

If your IBZA6HZ 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.

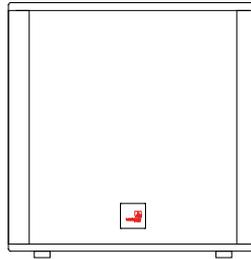


Frequency Range (+/- 6dB)

40- 20KHz

Recommended ratio

1xSW-118M: 4~8 xIBZA6HZ



IBZA6HZ + SW-118M

3 Configuration

Tecna® Sound Systems recommended operating the **IBZA6HZ** loudspeaker together Tecna loudspeaker controllers.

Tecna® only recommends using preset/amplifier developed by Tecna; 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.

Due to the special design of loudspeaker's medium impedance, please spent a little time calculating the correct impedance to which your system should be working



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

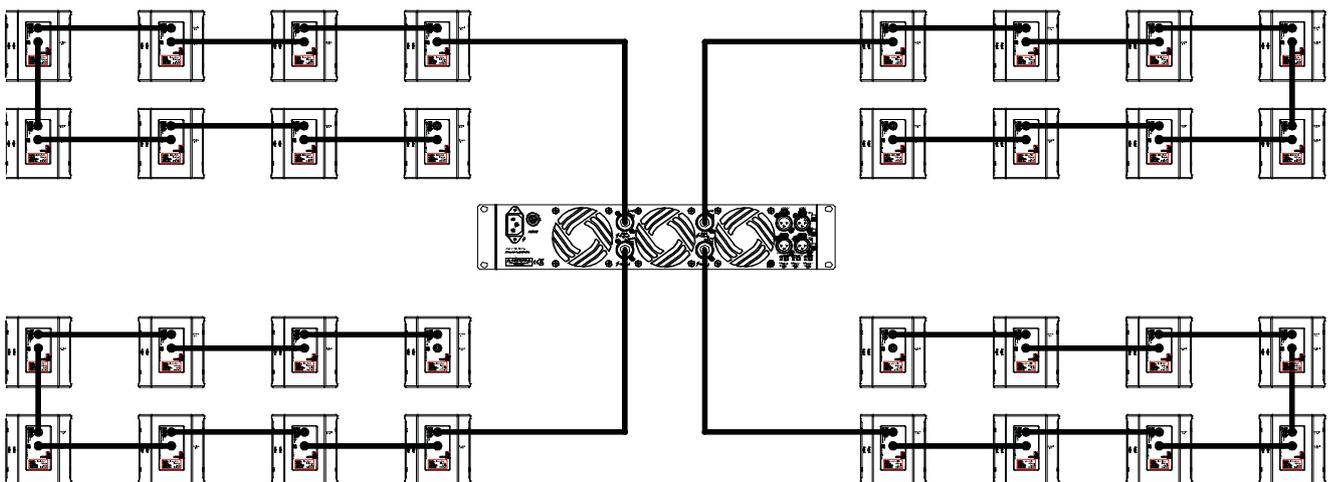
Please note the technical specification section on page 18.

3.1 Connection to PA4.1500

MAXIMUM OF 32 ENCLOSURES PER PA4.1500

8 x IBZA6HZ can be connected to each output channel on the PA4.1500. Therefore, a single PA4.1500 amplifier controller can drive up to 32 enclosures.

Impedance load: 40Ω for 1 enclosure, 5Ω for 8 enclosures.

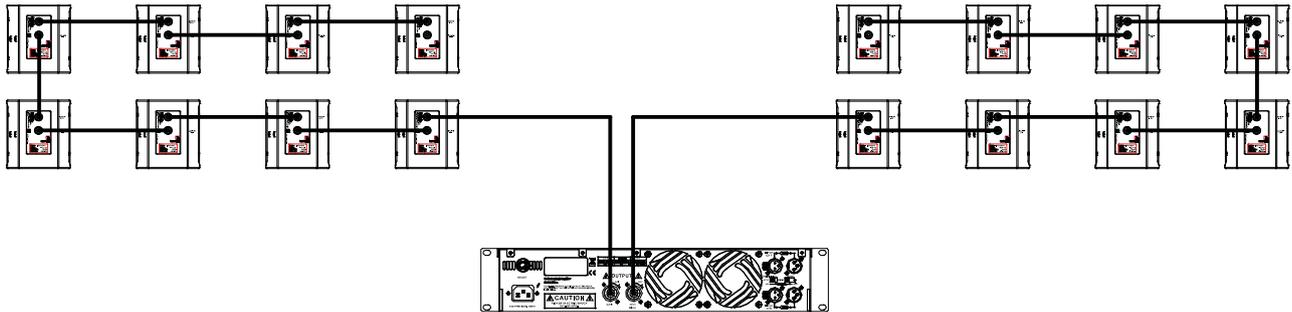


3.2 Connection to PA3000

MAXIMUM OF 16 ENCLOSURES PER PA3000

8 x IBZA6HZ can be connected to each output channel on the PA3000. Therefore, a single PA3000 amplifier controller can drive up to 16 enclosures.

Impedance load: 40Ω for 1 enclosure, 5Ω for 8 enclosures.

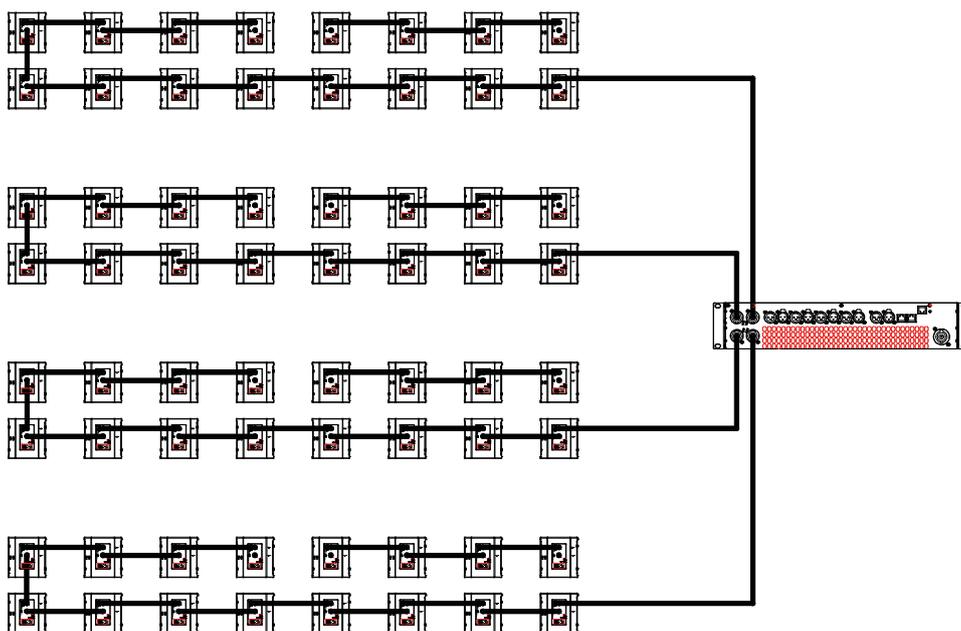


3.3 Connection to T-44/48 Series

MAXIMUM OF 64 ENCLOSURES PER T-44 Series/128 ENCLOSURES PER T-48 Series

16 x IBZA6HZ 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 **64** enclosures. A single **T-48** amplifier controller can drive **128** enclosures

Impedance load: 40Ω for 1 enclosure, 5Ω for 8 enclosures, 2,5Ω for 16 enclosures.



T-44 Series Amplifier

4 Integrating IBZA6HZ Using Subwoofers

4.1 Integrating IBZA6HZ Loudspeakers Systems with TecnaRE Subwoofers

An **IBZA6HZ** loudspeaker system can be deployed in combination with TecnaRE's subwoofers like a **SW-12, SW115, and SW118M**. 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 IBZA6HZ loudspeakers to subwoofers depends on the configuration of the system, the application, and the frequency content of the signal being reproduced.

For most application, a ratio of four IBZA6HZ for each SW-12 subwoofer and eight IBZA6HZ for each SW115 or SW-118M 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

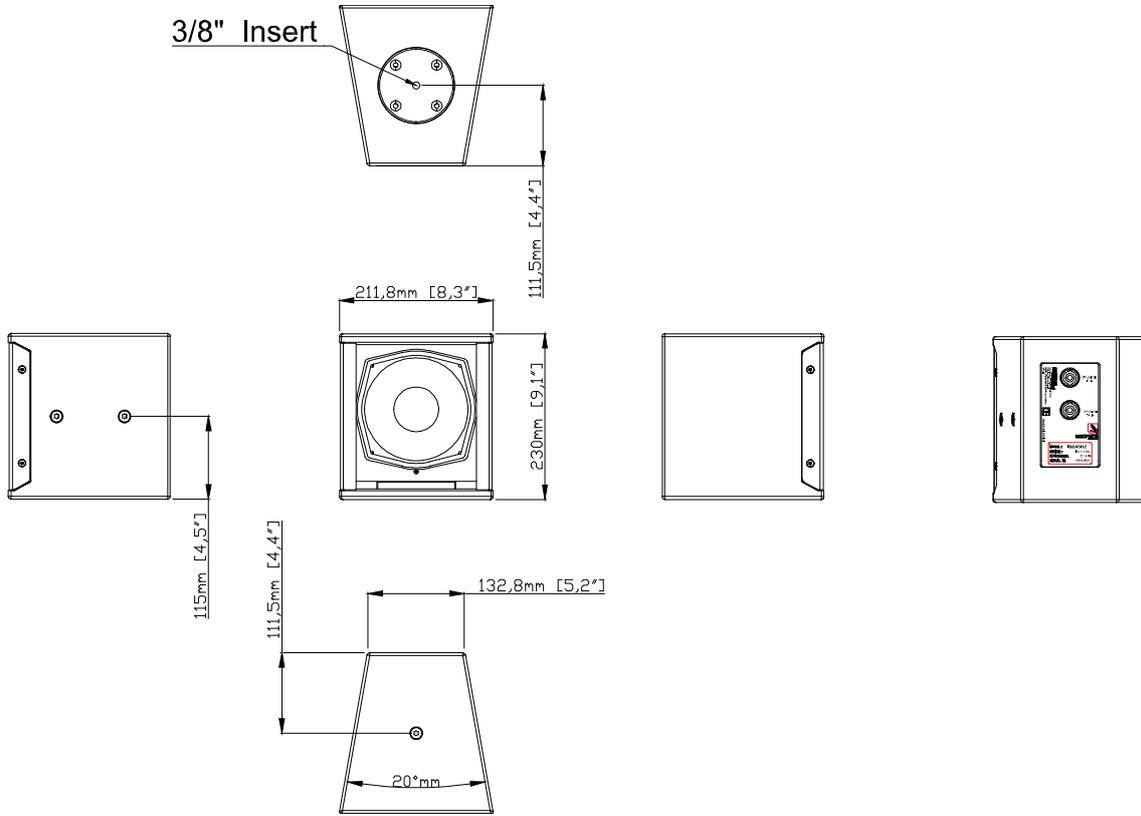
IBZA6HZ FULL-RANGE COMPACT LOUDSPEAKER SPECIFICATIONS

ACOUSTICAL	
Operating Frequency Range	110Hz -20 kHz±3dB, measured on axis. 125Hz-18kHz Recommended operating frequency range. Response depends on loading conditions and room acoustics
Axial Sensitivity	88 dB (1w/1m) ¹
Calculated SPL	111 dB continuous/117 Peak
Nominal Dispersion	70° Axis-symmetric
Power Handling	100 W AES / 200 Continuous
COMPONENTS	
Full-Range Loudspeaker	1 x 6½-inch cone driver ferrite magnets, direct radiation, bass-reflex Nominal impedance: 40Ω Voice coil size: 38mm Power Handling Capability: 100 W AES / 200 W continuous ² <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	2 x M6 insert for HG-1, HG2 Bracket, Wall Bracket and Horizontal Array Frame, 1xM6+1x3/8" insert for TUB6+ BRACKET and stand microphone
Dimensions (HxWxD)	230mm x 211,8mm x 223mm (9.05" x 8.31" x 8.78")
Weight	5,3 Kg. (11.68 lbs)
Custom finish	White code available on request Without charge. RAL code on special order.

Application information is presented for guidance only. Exel Acoustics SL reserves the right to make any necessary changes to the products and the published specifications. As part of the ongoing development program Exel Acoustics SL tries to maintain the highest degree of product compatibility.

¹ Applied RMS voltage is set to 2.85V for 40ohm nominal impedance

² Power of Continuous Program is defined as 3dB greater than the AES rating



IBZA6HZ Dimensions

Reinventing The Rules



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IBZAHZ Operation manual

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