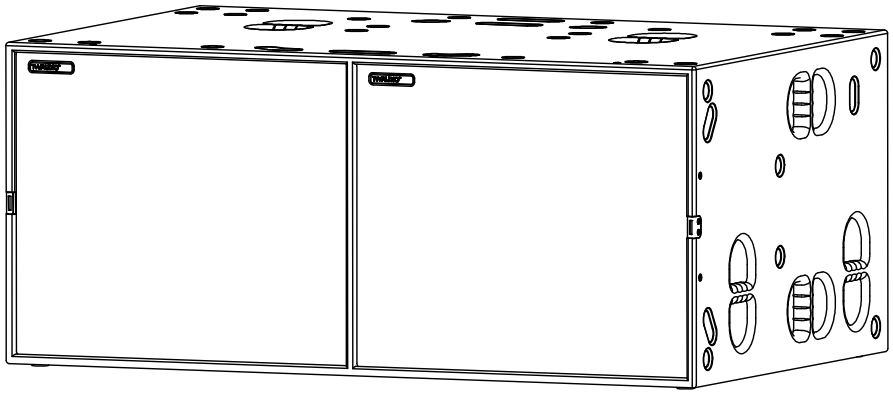
TWAUDIO®

BSX | Operation manual



Introduction

Thank you for choosing a high-quality product “MADE IN GERMANY” from the brand TW AUDiO.

So far the **B**ig-**S**ubwoofer-e**X**tender is the biggest TW AUDiO sub to date.

Equipped with two powerful 21“ drivers with a peak performance potential of 10 kW per driver, this speaker is able to reproduce a truly massive bass foundation.

Thanks to the hybrid enclosure principle its efficiency is maximised so that the energy is still perceptible even at a great distance. Primarily the BSX functions as a true sub bass extension.

Because of its extremely stiff yet lightweight membranes the BSX is able to deliver frequencies of up to 120 Hz clean and true to its impulses. As a full range sub the BSX is directly combinable with the M, T, C or VERA systems.

If you lend your product to another party, inform that party of the safety-related operating procedures and hand over this assembly guide. If you require additional copies of this manual, you can obtain them free of charge from TW AUDiO or download them from www.twaudio.de

Instructions in this user manual

Strictly adhere to the instructions contained in this operating manual that are marked as follows:

This symbol in combination with the signal word “Warning” identifies a potentially hazardous situation. Failure to comply with this safety instruction can lead to serious injury or even death.

This symbol in combination with the signal word “Warning” identifies a potentially hazardous situation. Failure to comply with this safety instruction can lead to serious injury or even death.

This symbol in combination with the signal word “Warning” identifies a potentially hazardous situation for persons with a pacemaker. Failure to comply with this safety instruction can lead to serious injury or even death.

This symbol in combination with the signal word “Caution” identifies a potentially hazardous situation. Failure to comply with this safety instruction can lead to light or moderate injury.

This symbol in combination with the signal word “Note” identifies a potentially hazardous situation. Failure to comply with this safety instruction can lead to product damage.

This symbol in combination with the signal word “Tip” identifies additional information or notes that will simplify working with TW AUDiO products on the basis of practical experience.

Notes on the products

Read manual before use!

Before using the device, carefully read the operating manual and keep it with the BSX loudspeaker.

General information

Operation manual: OM-BSX
Version 2.2 en, 10/2023
© by TW AUDiO 2023; all rights reserved.

All information contained in this operating manual was correct to the best of our knowledge at the time of printing.

Quality warranties or assurance of suitability for a certain type of use based on the technical specifications, dimensions and weights are not granted by TW AUDiO.

TW AUDiO also shall not assume liability for any secondary damage (property damage and/or personal injury) nor for the failure to comply with this operating manual!

TW AUDiO reserves the right to update this document based on recent developments.

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1. Safety | Intended use

Please adhere to the following safety instructions to avoid risks when operating loudspeakers.

The BSX loudspeaker was developed for use in professional sound systems. The loudspeaker may only be used by trained and qualified personnel.

Note the operating modes described in this operating manual. Other uses are not permissible.

Damage caused by improper use is not covered by TW AUDiO.

WARNING

Loudspeakers generate an electromagnetic field. Persons with pacemakers are not permitted to remain in the immediate vicinity of loudspeakers as the electromagnetic fields can cause pacemakers to malfunction.

WARNING

When working with heavy loads exceeding 20 kg (44 lbs.), use suitable aids (dollies, hoisting slings, etc.). Multiple persons may be required depending on the situation.

Ensure that the units are in a stable position and are firmly attached. A falling loudspeaker can result in serious personal injury and property damage.

When using and assembling TW AUDiO loudspeakers, only use materials specified by TW AUDiO. These tasks must be performed by qualified personnel. Adhere to the applicable safety regulations.

NOTE

When setting up loudspeakers, ensure that they are not exposed to the following ambient conditions:

- Direct sunlight
- Humidity
- Jolting
- Dust

WARNING

Keep away from the immediate vicinity of loudspeakers that are operated at high sound pressure levels. These loudspeaker systems are capable of endangering your health. Sound levels beginning as low as approximately 90 dB SPL can lead to long-term hearing impairment.

NOTE

Avoid:

- Feedback
- Distorted signals (clipping) and
- Peaks resulting from switching on devices, plugging in devices or unplugging devices during operation.

Such signals can lead to loudspeaker overload and ultimately to loudspeaker failure.

Ensure that the loudspeaker is not exposed to permanent thermal overloads. Thermal overloads may cause a fire and result in serious personal injury and property damage.

Note that TW AUDiO does not provide a warranty for damage that can be attributed to this type of overload and therefore cannot be held liable for any secondary damage.

A permanent magnetic field is present in the immediate vicinity of loudspeakers. Ensure that objects which react sensitively to magnetic fields are not located in the immediate vicinity of the loudspeaker. In particular, this applies to magnetic storage media, magnetic stripe cards such as debit cards and CRT displays. A distance of approximately one meter is sufficient to avoid damage.

Check loudspeakers and accessory parts regularly for visible wear. This is essential to ensure continuing fault-free operation. Worn parts should be replaced immediately. Spare parts are available from TW AUDiO.

2. Overview

2.1 Components

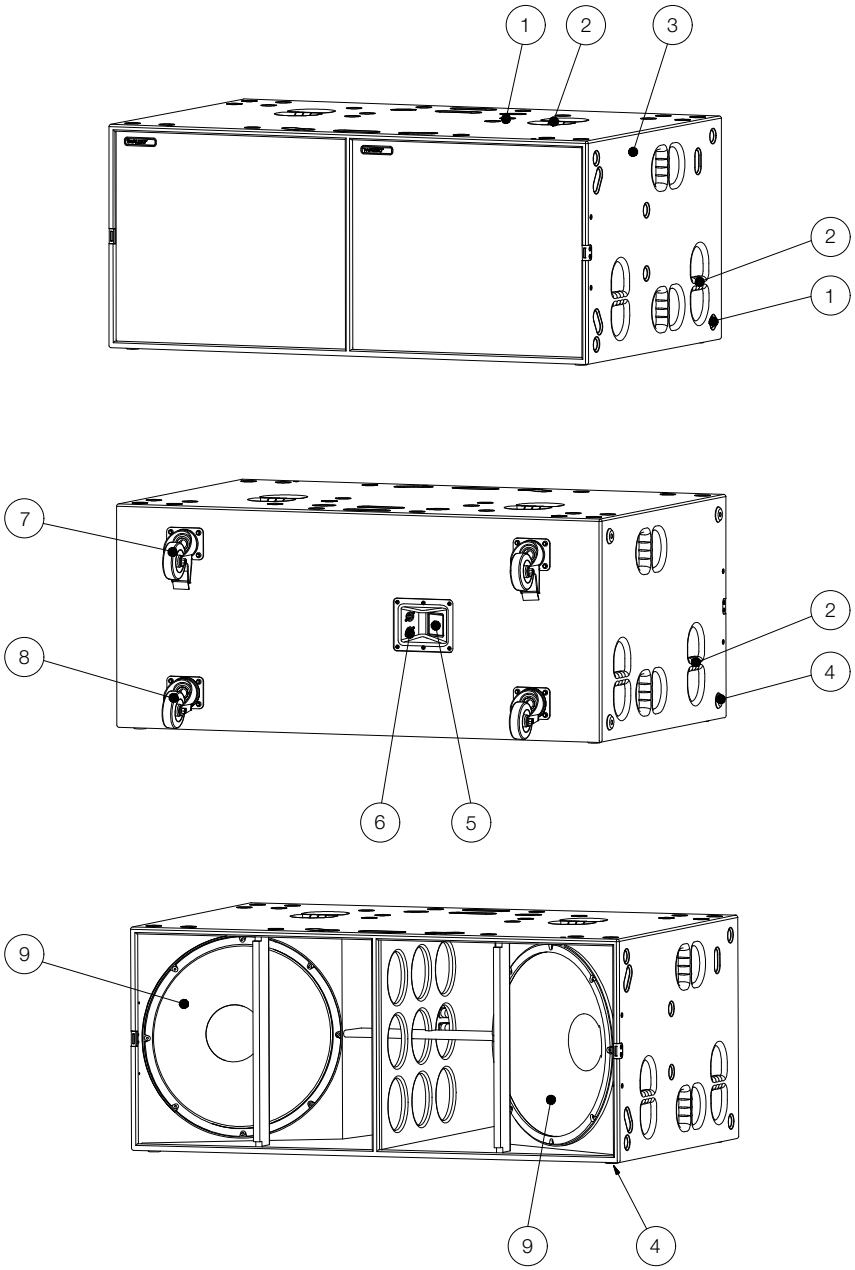

Figure 2.1 - Overview

1. Milling for rubber feet for safely stacking loudspeakers
2. Ergonomic carrying handles (12 pieces)
3. 18 mm multiplex enclosure – polyurea surface finish
4. Rubber feet (8 pieces)
5. Type label
6. Standard connection panel
7. 100 mm castor with stopper (2 pieces)
8. 100 mm castor without stopper (2 pieces)
9. 21“ cone drivers

2.2 Operation modes

The BSX loudspeaker can be operated in two operation modes. The operation mode is selected by choosing the preset in the system amplifier.

2.2.1 Full

In full mode, the BSX has a higher upper cutoff frequency. This mode is recommended for operating the BSX with tops only.

2.2.2 Infra

Infra operating mode is recommended when using the BSX loudspeaker in a system with additional subwoofers. In this mode, the lower cutoff frequency results in a bass range extension.

3. Technical specifications

3.1 Data sheet

Drivers	2x 21“ LF
Frequency response	27 - 120 Hz
Power handling (program/Peak)	2x 3600 / 2x 7200 W
Impedance	2x 4 Ω
Max. SPL / 1 m	142 dB
Dimensions (h x w x d)	606 x 1406 x 900 mm [23,86 x 55,35 x 35,43 in]
Weight	109 kg [240,3 lbs]
Surface	Polyurea surface finish

3.2 Connection diagram

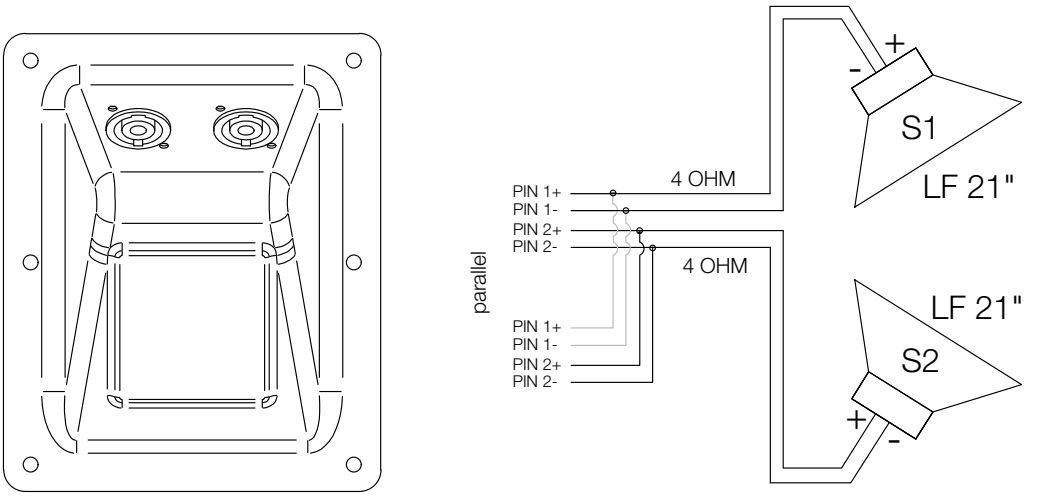

Figure 3.2 - Connection diagram

4. Commissioning

4.1 Setup

The BSX loudspeaker is designed for standing, vertikal and horizontal operation.

Make sure that all system structures are located on a firm, level surface and that the surface can bear the total weight!

Make sure the speakers are securely fastened to prevent personal injury and property damage.

TW AUDiO recommends using only the accessories specified by TW AUDiO for securing and mounting loudspeakers.

Please note that setting up the system setups always requires two, preferably four persons!

Make sure that no unauthorized persons can access the system structures!

Cordon off the area professionally!

Any influences on your system setup, such as leaning against objects (or people) and flying objects around, be refrained from!

Use all four rubber feets and insert them into the corresponding millings for rubber feets on the BSX loudspeaker.

Note that the four black dots represent the rubber feets on the upper loudspeakers and the millings for rubber feets on the BSX loudspeaker.

4.2 Operation

Operation of the BSX speaker requires a DSP-Controller. For this purpose, only presets developed by TW AUDiO are recommended. The TW AUDiO system racks are ideally suited for this purpose.

NOTE

Before connecting the loudspeaker to the amplifier, ensure that the right preset has been loaded.

Using a wrong, out dated or a preset not provided by TW AUDiO can lead to destruction of the speaker.

NOTE

Make sure that the amplifier's specifications meet the requirements. Using an amplifier that doesn't meet the specifications can destroy the loudspeaker.

Please note the technical data in section 3.1 on page 9.

4.3 Connecting the cable

To create a cable connection with an amplifier rack from TW AUDiO, proceed as follows.

NOTE

Ensure that the cable cross sectional area is sufficient (at least 1.5 mm^2) to avoid power losses. TW AUDiO recommends using the loudspeaker cables available from TW AUDiO.

When connecting the cables to the loudspeaker, ensure that polarity (+/-) and pin assignment (1/2) are correct. Incorrect connection can lead to a significant change in the loudspeaker's sound characteristics and may damage the driver.

The pin connections of the BSX loudspeaker can be found in section 3.2 ("Connection diagram") on page 9.

The internal wiring of the BSX loudspeaker allows for parallel connection of multiple loudspeaker units.

Please note that parallel connections will decrease the total impedance of your loudspeaker configuration.

The total impedance and the resulting power of the speaker configuration must match the output power of the amplifier.

4.4 Wind load

Before setting up the system outdoors, consider unexpected wind conditions at the operation site!

Disassemble your system immediately when wind speeds exceed 8 bft (34 to 40 kn / 62 to 74 kph / 38.5 to 46 mph) and secure the system components!

Make sure that there are no persons in the immediate vicinity of the system structure!

Make sure that the system structures are not operated over the audience at wind speeds in excess of 6 bft (22 to 27 kn / 39 to 49 kph / 24.2 to 30.45 mph) and that there are no persons in the immediate vicinity of the system structure!

4.5 Possible vertical system setups

Note that this operation manual shows possible mechanical configurations. A different loudspeaker ratio may be required for the intended acoustic result.

Additional loudspeakers can be placed on top of the BSX loudspeaker in standing, vertical operation.

Make sure that the existing millings for rubberfeets (Pos.1 - figure 2.1) are used for a safe stacking of the loudspeakers.

Secure the stacked speakers properly, if necessary by additional fixation, so that a danger of tipping over can always be prevented under the given environmental conditions!

4.5.1 T24(N) loudspeaker on BSX loudspeaker

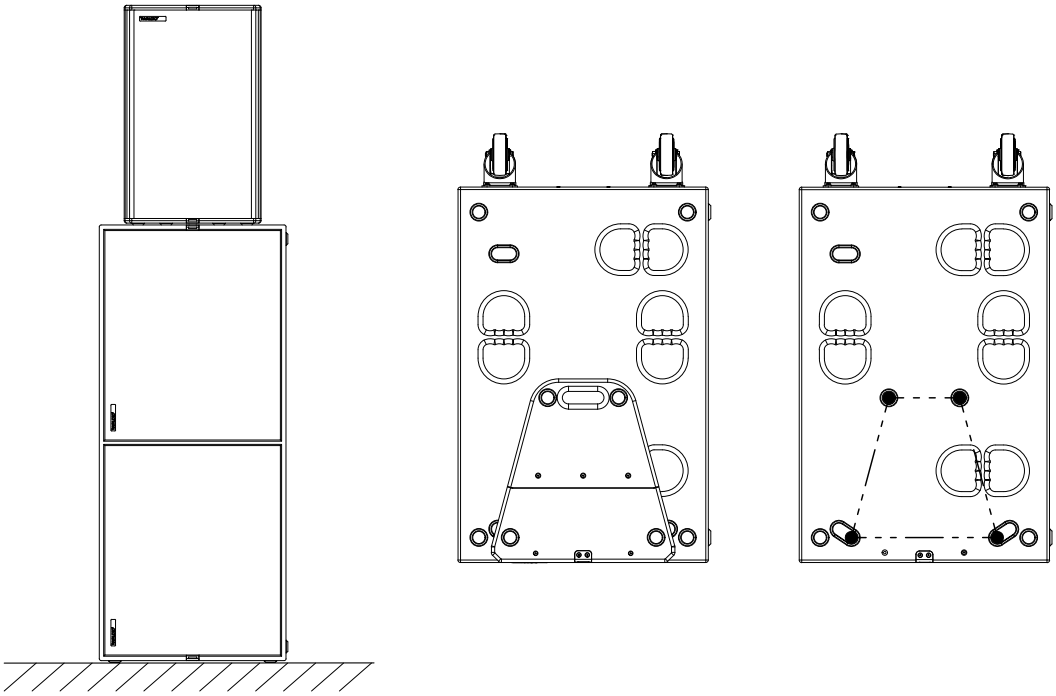

Figure 4.5.1 - T24(N) on BSX loudspeaker

4.6 Possible horizontal system setups

NOTE

Note that this operation manual shows possible mechanical configurations. A different loudspeaker ratio may be required for the intended acoustic result.

Additional loudspeakers can be placed on top of the BSX loudspeaker in standing, horizontal operation.

WARNING

Make sure that the existing millings for rubberfeets (Pos.1 - figure 2.1) are used for a safe stacking of the loudspeakers.

WARNING

Secure the stacked speakers properly, if necessary by additional fixation, so that a danger of tipping over can always be prevented under the given environmental conditions!

4.6.1 Two B18 loudspeaker laid on BSX loudspeaker

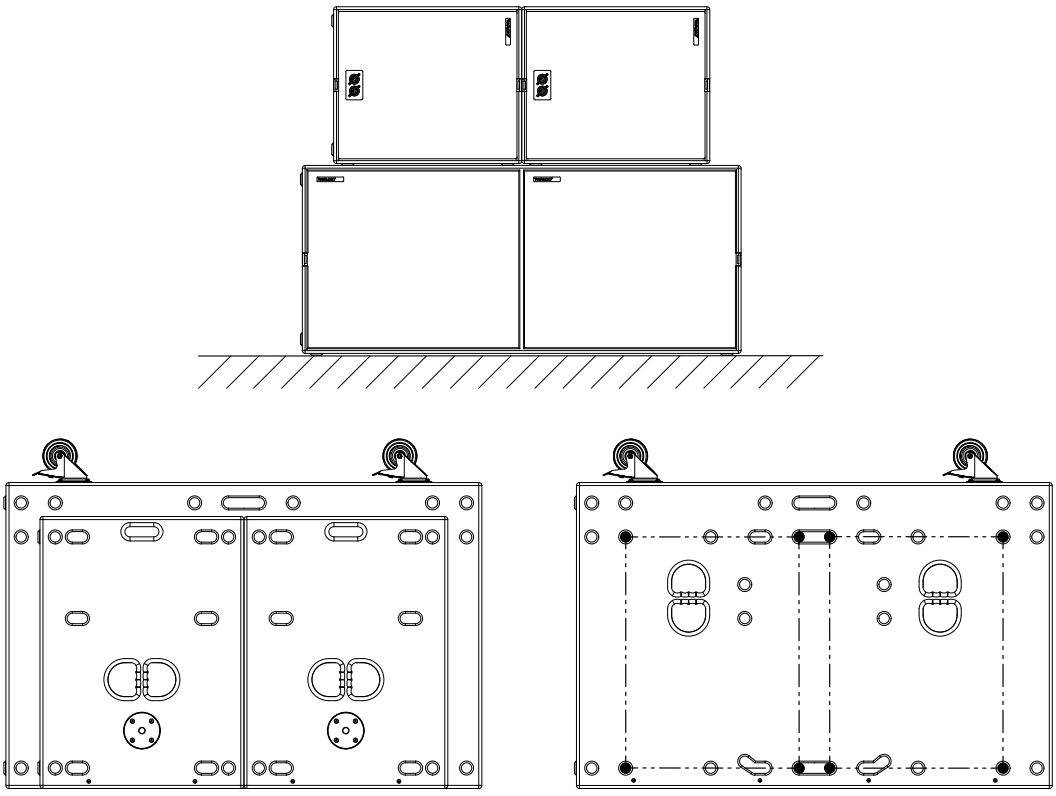

Figure 4.6.1 - two B18 loudspeaker on BSX loudspeaker

4.6.2 Two B30 loudspeaker laid on BSX loudspeaker

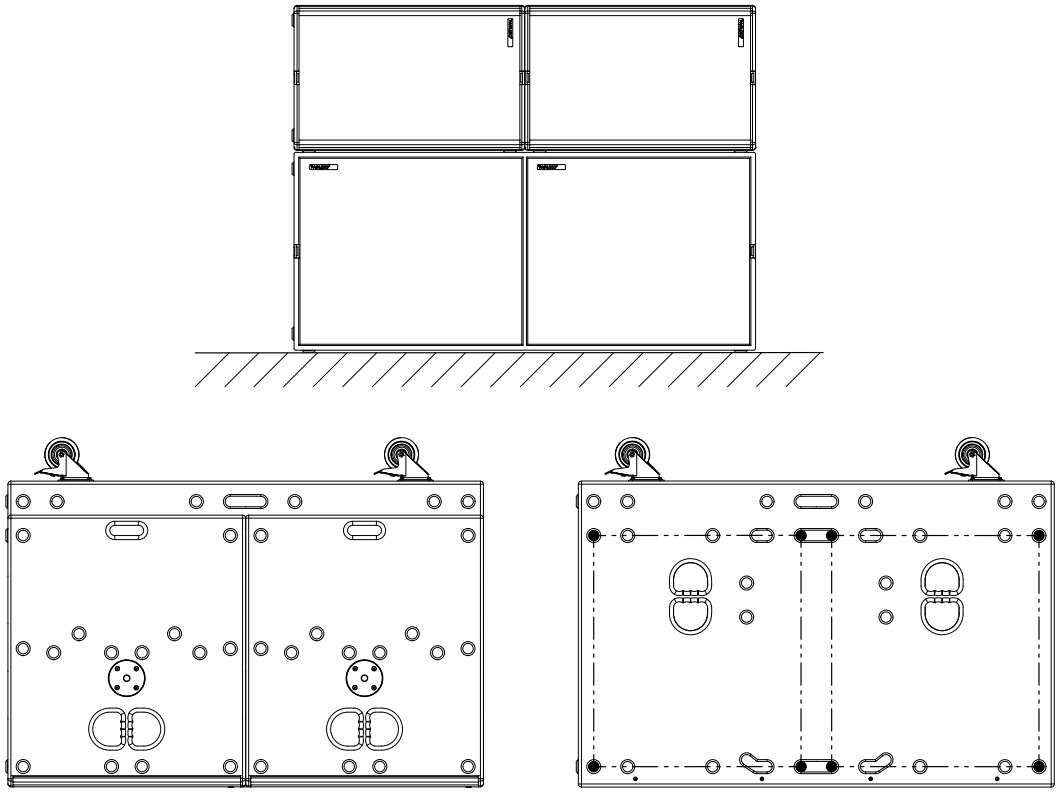

Figure 4.6.2 - two B30 loudspeaker on BSX loudspeaker

TIP

It is recommended to operate the VERA S33 or VERA S32 loudspeaker in Endfire mode. For correct alignment of the two subwoofer types, a delay for the BSX loudspeaker is also necessary. For further information on system configuration, please contact the TW AUDiO support department.

4.6.3 Two VERA S32 loudspeaker on BSX loudspeaker

Note that this system setup requires the production status of the BSX loudspeaker as of August 2023.

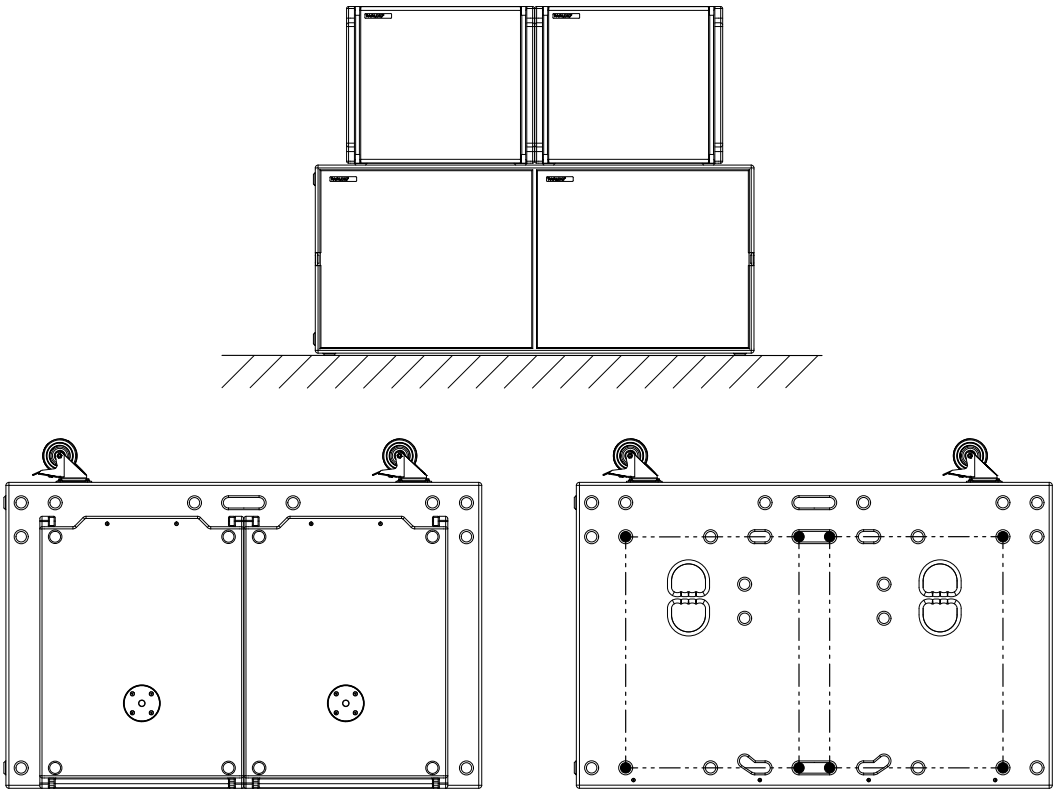

Figure 4.6.3 - two VERA S32 loudspeaker on BSX loudspeaker

4.6.4 Two VERA S33 loudspeaker on BSX loudspeaker

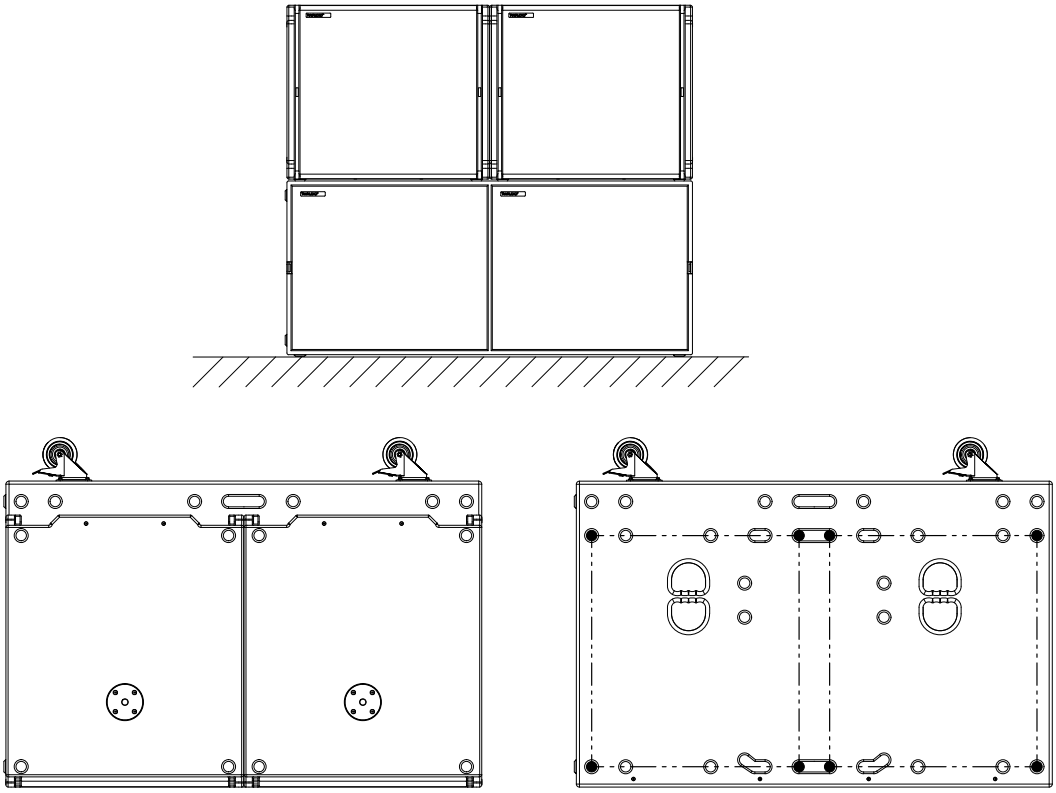

Figure 4.6.4 - two VERA S33 loudspeaker on BSX loudspeaker

4.6.5 One VERA S33 loudspeaker on BSX loudspeaker

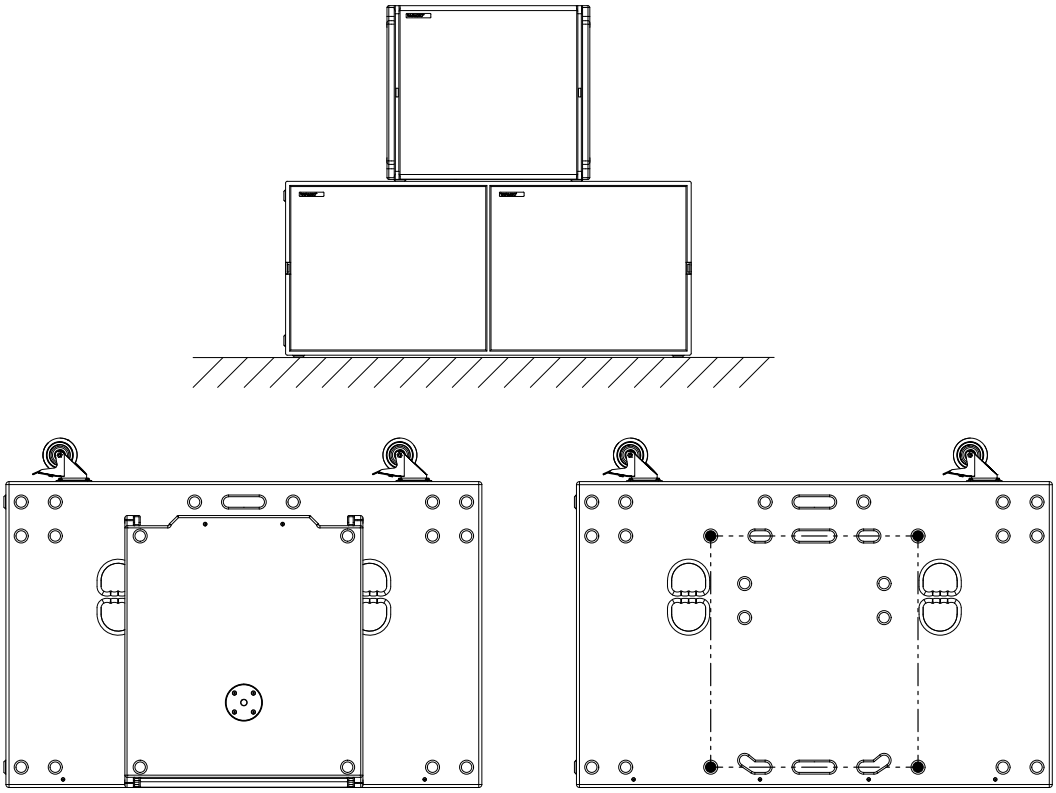

Figure 4.6.5 - VERA S33 on BSX loudspeaker

4.6.6 BSX loudspeaker laid on BSX loudspeaker

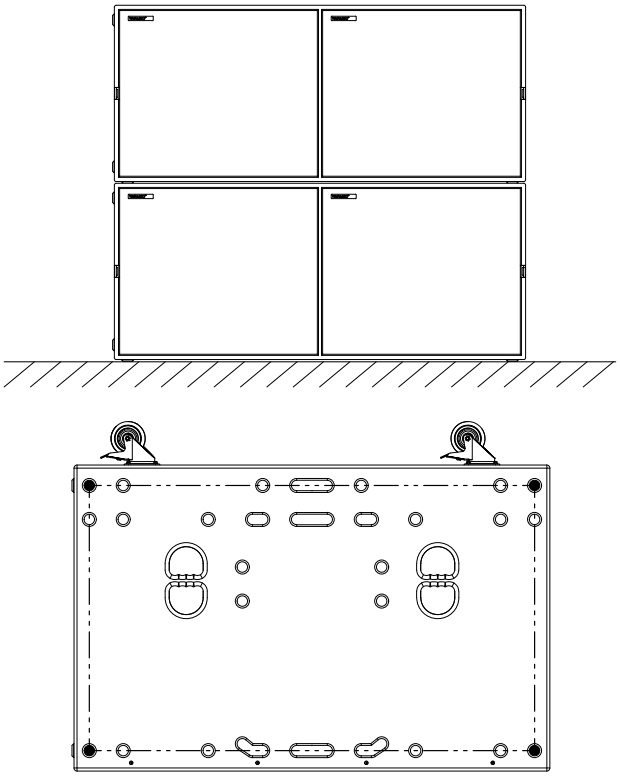

Figure 4.6.6 - BSX on BSX loudspeaker

5. Transport and Storage

Due to the BSX loudspeaker weighing over 100 kg [220.46 lbs.], four persons are required to handle and transport the unit.

NOTE

To transport the unit with a single person, TW AUDiO recommends the storage on the back rollers.

When transporting and storing the unit, it is important to ensure that the surface and front grill of the loudspeaker are not damaged. Moisture can penetrate through exposed wood surfaces and cause the wood to swell. A bent or broken front grill will no longer adequately protect the sensitive speaker membranes.

In addition, appreciable dust deposits may considerably impair the functionality of a loudspeaker membrane. For this reason, the loudspeakers should be transported and stored in a safe, careful, dry and largely dust-free manner.

The following accessory parts for transport and storage are available from TW AUDiO:

- FDBSX (front cover)
- CoverBSX (protective cover)

The original packaging is unsuitable as permanent storage and transport packaging.

6. CE Conformity Declaration

Copy and translation of the original CE Conformity Declaration:

CE

We hereby declare that the below-referenced components by virtue of their design and construction, and in the configuration placed on the market by us, satisfy the safety and health requirements of the applicable EC directives. This declaration becomes invalid in case of modifications that have not been approved by us.

This declaration applies to the following components

• BSX

as well as all model variants based on these, provided that they correspond to the original factory models and have not been technically modified in any way.

Applicable directives:

• 2001/95/EG
• 2011/65/EU

Applicable national standards and technical specifications:

• DIN EN 18800
• DIN EN ISO 12100
• DGUV Vorschrift 17 und 18
• EN 50581: 2013-02

Berlin, Germany, January 1st, 2021

Bernhard Wüstner

7. Disposal

It is prohibited to dispose of used electrical equipment with household refuse.

All TW AUDiO INTERNATIONAL GmbH products are so-called B2B-products. This means that they are

symbol shown here may only be disposed of by TW AUDiO.

The loudspeaker owner is legally responsible for proper disposal of used devices that do not bear this symbol. This pertains to all products delivered prior to March 29, 2010. Nevertheless, TW AUDiO will also be happy to assist you in this case.

If you have any question regarding the disposal of used devices, please contact us under the following telephone number:

+49 (0) 71 41 - 48 89 89 0

Thus, TW AUDiO is in strict compliance with the Waste Electrical and Electronic Equipment Directive (2012/19/EU) for the protection of our environment.

TW AUDiO is registered under the following WEEE-reg.-no. with the German National Register EAR as a B2B-manufacturer and distributor of electrical devices:

DE93295191

In countries outside of the European Union, comply with local regulations.

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