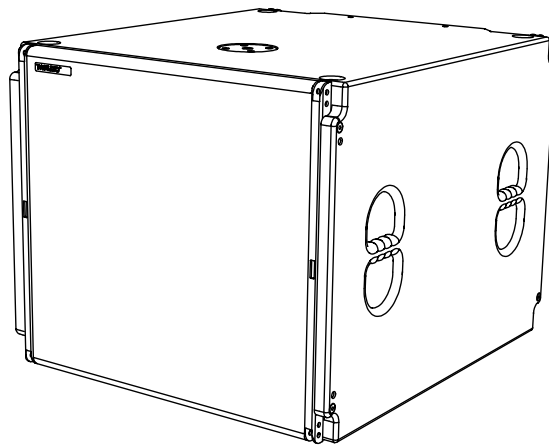


VERA S33

Operation manual



Introduction

Thank you for choosing a high-quality product “MADE IN GERMANY” from TWAUDIÖ.

The VERAS33 is no normal subwoofer. It is literally pointing the way.

Its special feature is an 18“ speaker at the front and a 15“ speaker at the back. With bi-amp operation and the respective presets, different dispersion characteristics can be produced. The cardioid mode is optimized for maximum attenuation of the rearward sound dispersion, achieving attenuation greater than 15 dB over the entire bass spectrum. The end-fire mode is optimized for maximum sound pressure at the front with simultaneous partial reduction at the rear. Because of their directionality, basses sound much more concrete and musical, especially in venues with a lot of reverb.

It goes without saying that a wide range of different setups can be achieved with the VERAS33. Featuring the same system width and a compatible rigging mechanism, the VERAS33 can be inconspicuously integrated in the VERA36 array.

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 TWAUDIÖ 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 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 TWAUDIO 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 VERAS33 loudspeaker.

General information

Operation manual: OM-VERAS33
Version 1.2 en, 02/2019
© by TWAUDIO 2019; 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 TWAUDIO.

TWAUDIO 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!

TWAUDIO 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 VERA S33 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 TWAUDIÖ.



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.



When working with heavy loads exceeding 20 kg (44,09 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 TWAUDIÖ loudspeakers, only use materials specified by TWAUDIÖ. These tasks must be performed by qualified personnel. Adhere to the applicable safety regulations.



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

- Direct sunlight
- Humidity
- Jolting
- Dust



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.



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 TWAUDIÖ 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 TWAUDIÖ.

2. Overview

2.1 Components

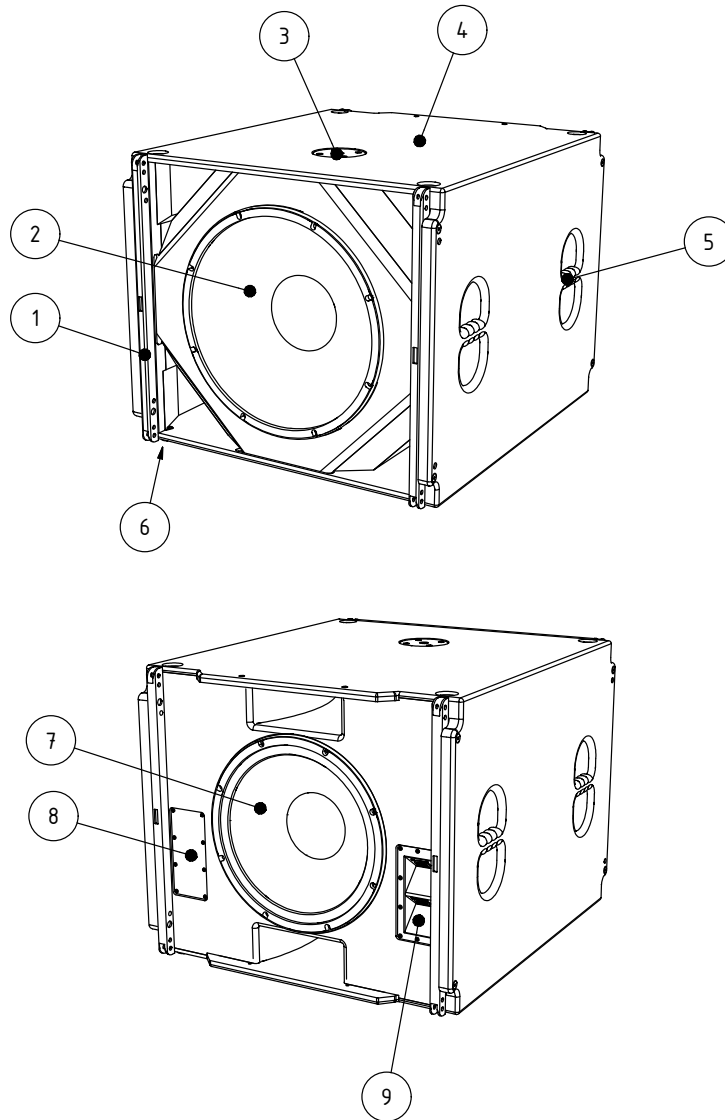


Figure 2.1 - Overview

1. Rigging tracks (4 pieces)
2. 18" cone driver (front)
3. M20 pole mount flange for attaching a distance rod
4. 15mm Multiplex enclosure – polyurea surface finish
5. Ergonomic carrying handles (two each, left and right)
6. Rubber feet (4 pieces)
7. 15" cone driver (rear)
8. Type label
9. Terminal plate

2.2 Operation modes

The VERA S33 can be operated in one of two modes. The operating mode is selected by choosing the preset in the system amplifier.

2.2.1 Cardioid

In Cardioid mode, the focus is on maximum sound pressure reduction behind the loudspeaker setup, with partial forward-facing level addition.

The rear speaker produces an inverted signal to cancel out sound components on the back. This results in a sound pressure level reduction of about 20 dB over a wide frequency range. Depending on the distance between the loudspeakers and their transit time difference, there will be a frequency-dependent sound pressure level addition of up to 3 dB in front of the loudspeaker arrangement. By adjusting the transit time difference between the two individual drivers, a different dispersion pattern – e.g. hypercardioid – can be achieved.

2.2.2 Endfire

In Endfire mode, the focus is on maximum forward-facing sound pressure level addition, with partial reduction to the rear.

To achieve this, the front loudspeaker's signal is delayed so that its signal is in phase with the rear loudspeaker in the direction of sound. This results in a sound pressure level addition of about 6 dB over a wide frequency range. Depending on the speaker distance, there is a frequency-dependent sound pressure level reduction on the rear side. The strongest cancellation is to be expected at the frequency whose wavelength corresponds to four times the driver spacing.



Never change the preset during active operation. Operating with an incorrect preset can damage parts of the loudspeaker.

3. Technical specifications

3.1 Data sheet

Drivers	1x 18" LF front / 1x 15" LF rear
Frequency response	33 - 120Hz
Power handling (program/Peak)	2400 / 4800W 18" 2000 / 4000W 15"
Impedance	8Ω 18" / 8Ω 15"
Max. SPL / 1 m	134dB
Dimensions (h x w x d)	606 × 700 × 800mm [23.86 x 27.56 x 31.5 in]
Weight	67,2kg [148lbs]
Surface	Polyurea-coated

3.2 Connection diagram

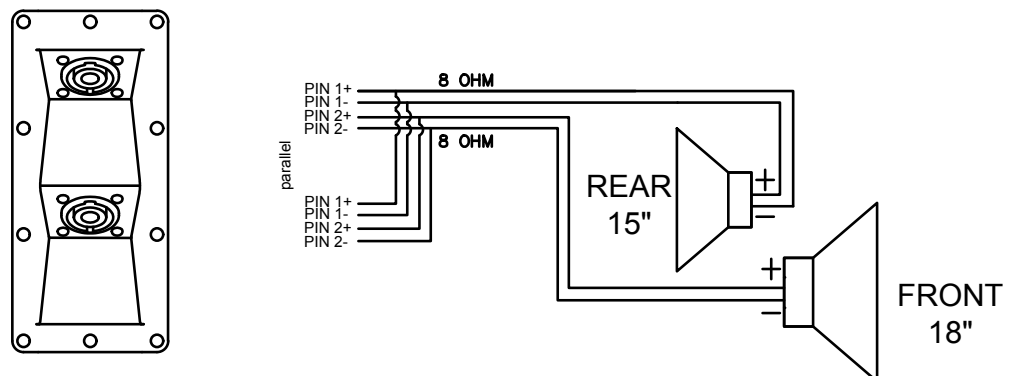


Figure 3.2 - Connection diagram

4. Commissioning

4.1 Setup

The VERAS33 loudspeaker is designed to be used as a single loudspeaker as well as for array 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.



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

4.2 M20 pole mount flange

For all system components mounted on top of the M20 pole mount flange, observe the respective operating instructions!

Also be sure to observe all of the following warnings:



Make sure that the maximum load of 50kg / 110lbs for the M20 pole mount flange is not exceeded! Figure 2.1 – Item 2.



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

Cordon off the area professionally!



The M20 pole mount flange (figure 2.1- item 2) is not designed for side forces once mounted – do not apply any pressure from the sides.

Make sure that no external forces are applied to the system structures. No objects or persons should lean against the structures, no objects should be thrown against them. If pressure is applied on the flange the loudspeaker may be damaged or falling over.



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!



Please note that only centered loads are allowed to be placed on the M20 pole mount flange – figure 2.1 – Item 2.

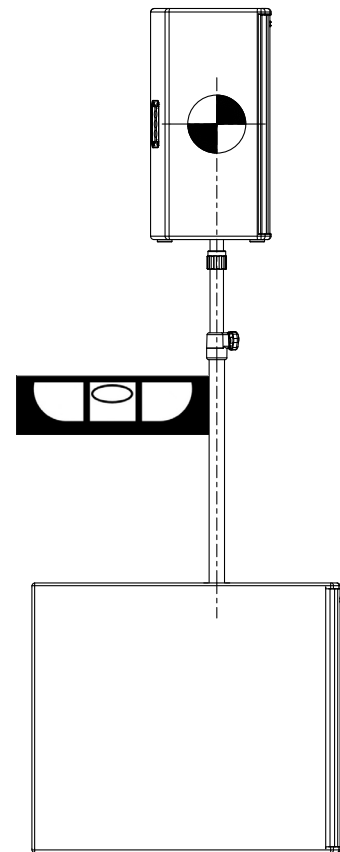
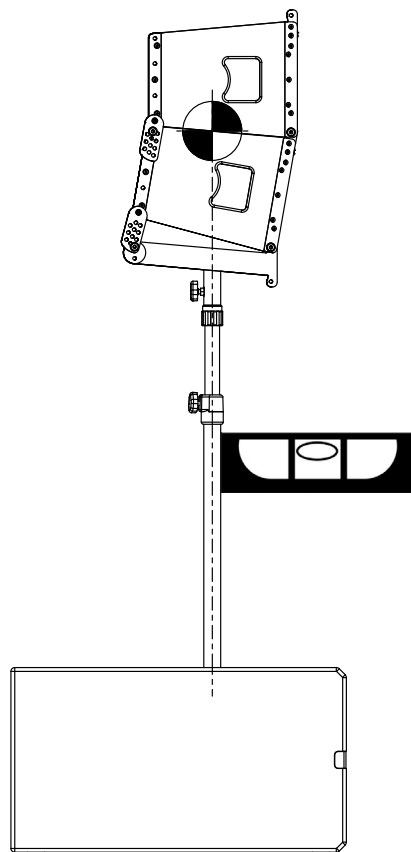


Figure 4.2.1 - system setup VERAS33

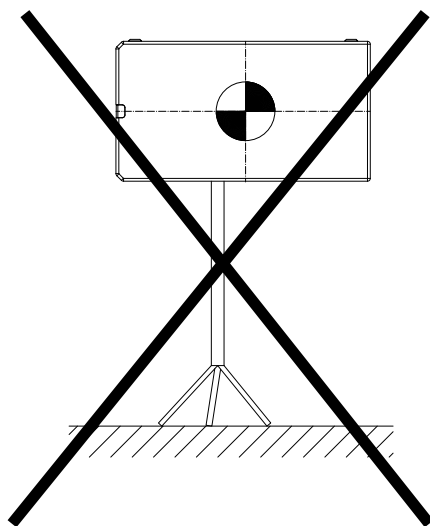


Figure 4.2.2 - VERAS33 – improper installation

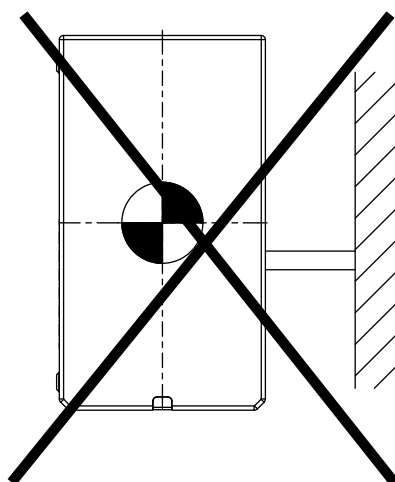


Figure 4.2.3 - VERAS33 – improper wall mounting

4.3 Rigging tracks



Please note that several VERAS33 loudspeakers should be only flown vertically in relation to each other!



Please note that the VERAS33 loudspeakers must be mechanically correctly connected with each other. This may only be done via the front and rear rigging tracks (see figure 2.1 - pos.5) and additional box link set BLS!



The further functionality as well as all possible setup variants of the rigging can be found in the manuals: VERARF900.



With our simulation software EASEFocus you can plan line arrays of the series VERA36. EASEFocus is available as a free download from the TWAUDIO website at www.twaudio.com.

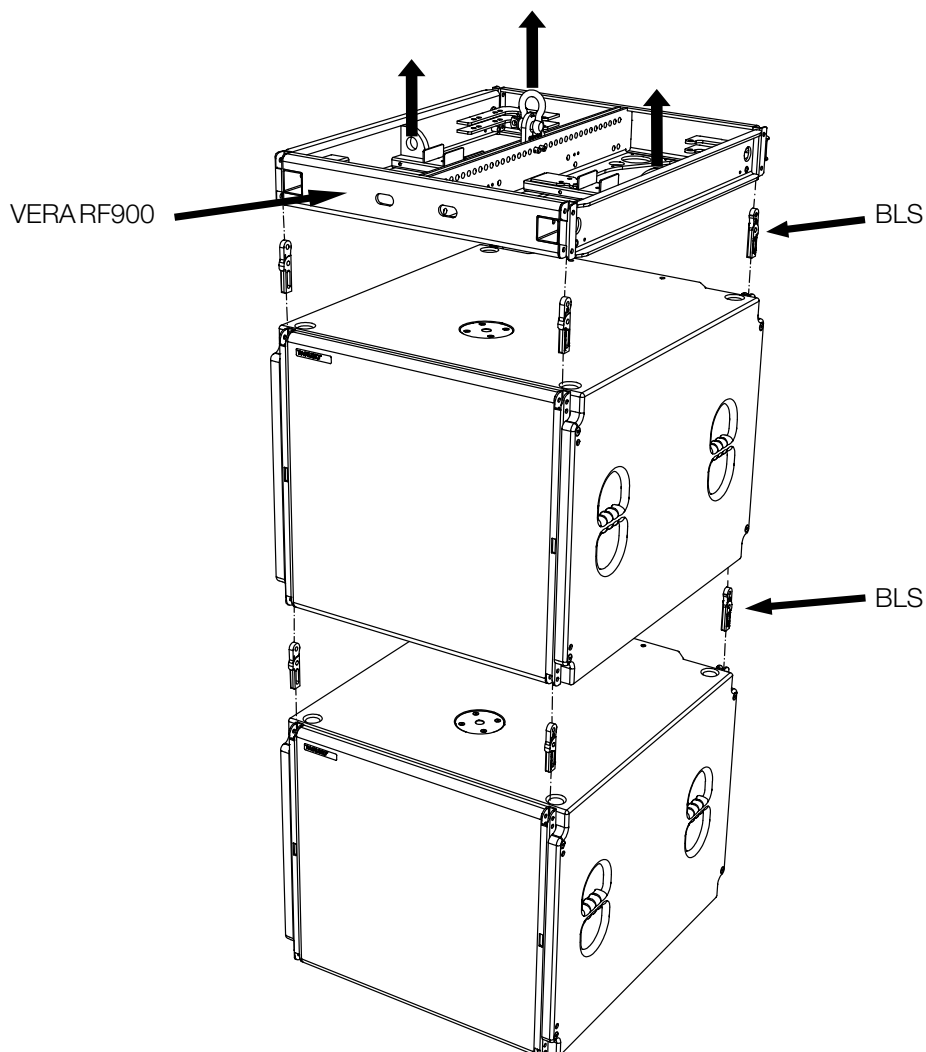


Figure 4.3.1 - VERAS33 vertical



Make sure that no multiple VERA S33 loudspeakers are flown horizontally!

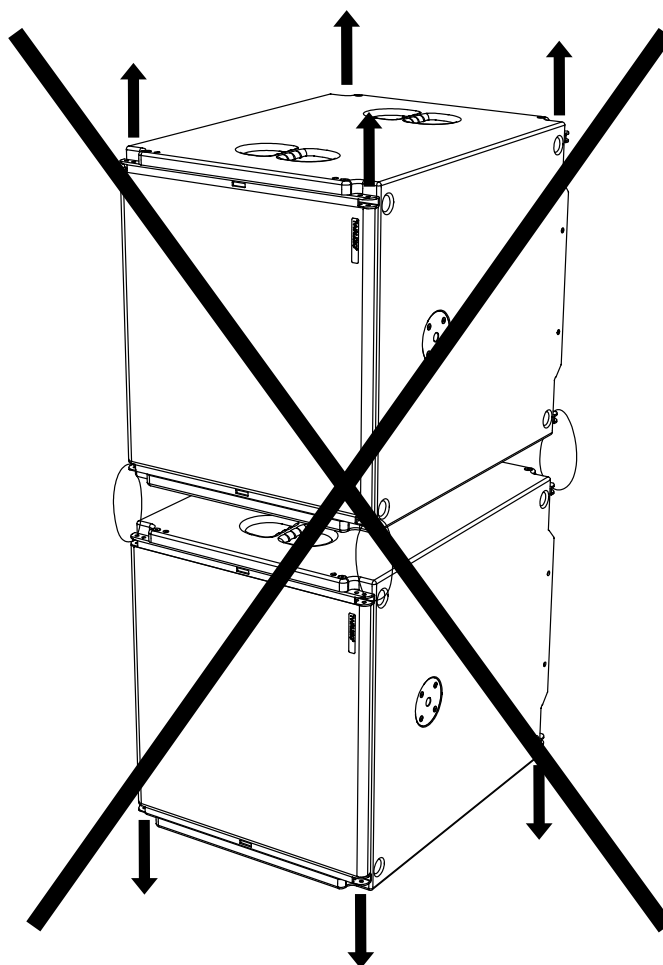


Figure 4.3.2 - improper use VERA S33 horizontal

4.4 Operation

Operation of the VERA S33 speaker requires a DSP-Controller. For this purpose, only presets developed by TWAUDIÖ are recommended. The TWAUDIÖ 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 the wrong preset or a preset not provided by TWAUDIÖ preset can destroy 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.

4.5 Connecting the cable

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



NOTE

Ensure that the cable cross sectional area is sufficient (at least 1.5 mm²) to avoid power losses. TWAUDIO recommends using the loudspeaker cables available from TWAUDIO.

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 VERA S33 loudspeaker can be found in section 3.2 ("Connection diagram") on page 9.

The internal wiring of the VERA S33 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.

5. Transport and Storage

Due to the VERA S33 loudspeaker weighing over 40 kg [88 lbs.], three persons are required to handle and transport the unit.



NOTE

To allow a single person to transport up to two VERA S33 loudspeakers, TWAUDIO recommends using the QDB30 quad dolly.

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 TWAUDIO:

- QDB30 (quad dolly)
- Cover2S33 (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:



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

- VERAS33

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

Ludwigburg, Germany, April 1st, 2014

A handwritten signature in black ink, appearing to read 'T. Wüstner'.

Tobias Wüstner

7. Disposal

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



All TWAUDIÖ GmbH products are so-called B2B-products. This means that they are sold by a commercial business to a commercial business. TWAUDIÖ products that bear the trash can symbol shown here may only be disposed of by TWAUDIÖ.

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

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

DE54488702

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

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