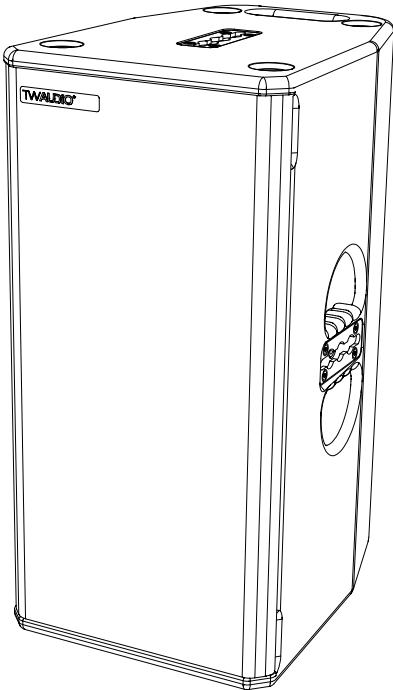


**T20**

**Operation manual**



## Introduction

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

The T20 has been finely honed to meet the high expectations of our customers. A slim, compact top measuring 30 cm (11.8”) wide and comprising two 10” woofers and a 1.4” mid-high section, the T20 boasts a symmetrical design that makes it ideal for use both horizontally and vertically. Within the enclosure, a sophisticated driver array and passive crossover mean the T20 achieves constant directivity across both planes.

However, its potential is fully realized when oriented horizontally, perhaps for use as a front or drum-fill. In this configuration, the performance of most two-way enclosures is compromised, but the T20 remains entirely consistent.

Other applications for the T20 include use as a center channel or in installations (see also our T20i for fixed installations) where ceiling height is a challenge.

Should a longer, narrower application be required, the standard 90° × 50° degree high range horn can easily be rotated or changed to a 60° × 40° degree variation - all without the need for tools and within seconds.

Whether working in full-range, standalone mode, with a subwoofer or in conjunction with vertical arrays, the T20 has the power to exceed your expectations in every environment.

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](http://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 TWAUDIÖ 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 T20 loudspeaker.

### General information

Operation manual: OM-T20  
Version 1.1 en, 06/2019  
© by TWAUDIÖ 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 TWAUDIÖ.

TWAUDIÖ 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!

TWAUDIÖ 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 T20 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 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.



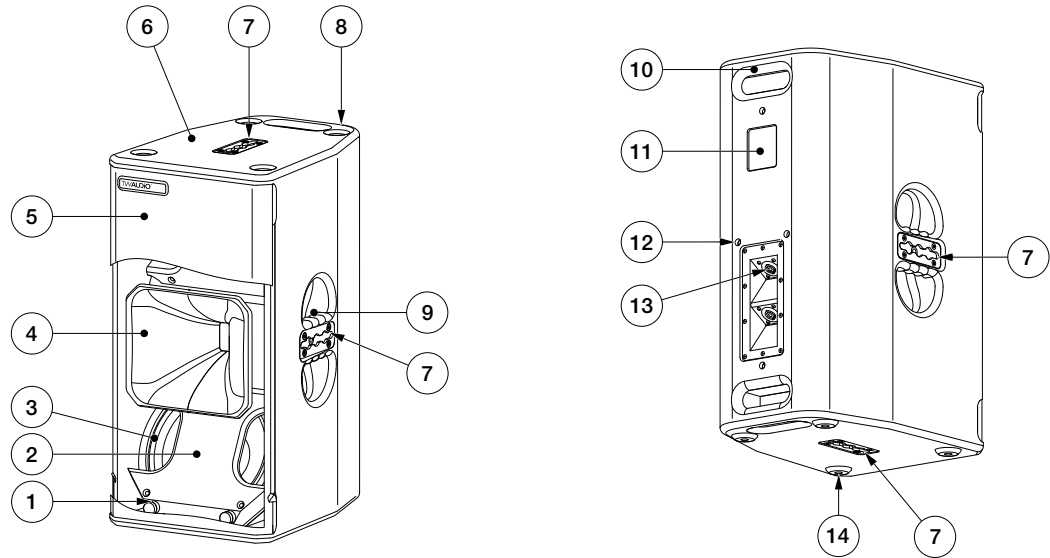
A permanent magnetic field is present in the immediate vicinity of loudspeakers. Ensure that objects which react sensitively to magnetic fields are not located in the immediate vicinity of the loudspeaker. In particular, this applies to magnetic storage media, magnetic stripe cards such as debit cards 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. Front grill magnetic holder (4 pieces)
2. Phase plug
3. 10" cone drivers
4. Exchangeable horn with 1.4" compression driver
5. Front grill
6. 12 mm multiplex housing – Warnex texture paint surface finish
7. Rigging plate for attaching accessory parts
8. Milling for rubber feet for secure stacking of loudspeakers
9. Ergonomic carrying handles (left and right)
10. Handle (top and bottom)
11. Type label
12. M10 thread socket for affixing accessory parts (8 pieces)
13. Connection panel, top and bottom, each with a SpeakON® socket
14. Rubber feet (4 pieces)

2.2 Variants

The T20 loudspeaker is available in a  $90^\circ \times 50^\circ$  variant and in a  $60^\circ \times 40^\circ$  variant. The specified degree values refer to the horizontal and vertical radiation characteristics of the horn. Different interchangeable horn cones can be installed for this purpose. The variant of the T20 loudspeaker can be identified on the outside of the horn cone (see figure 2.2.1).

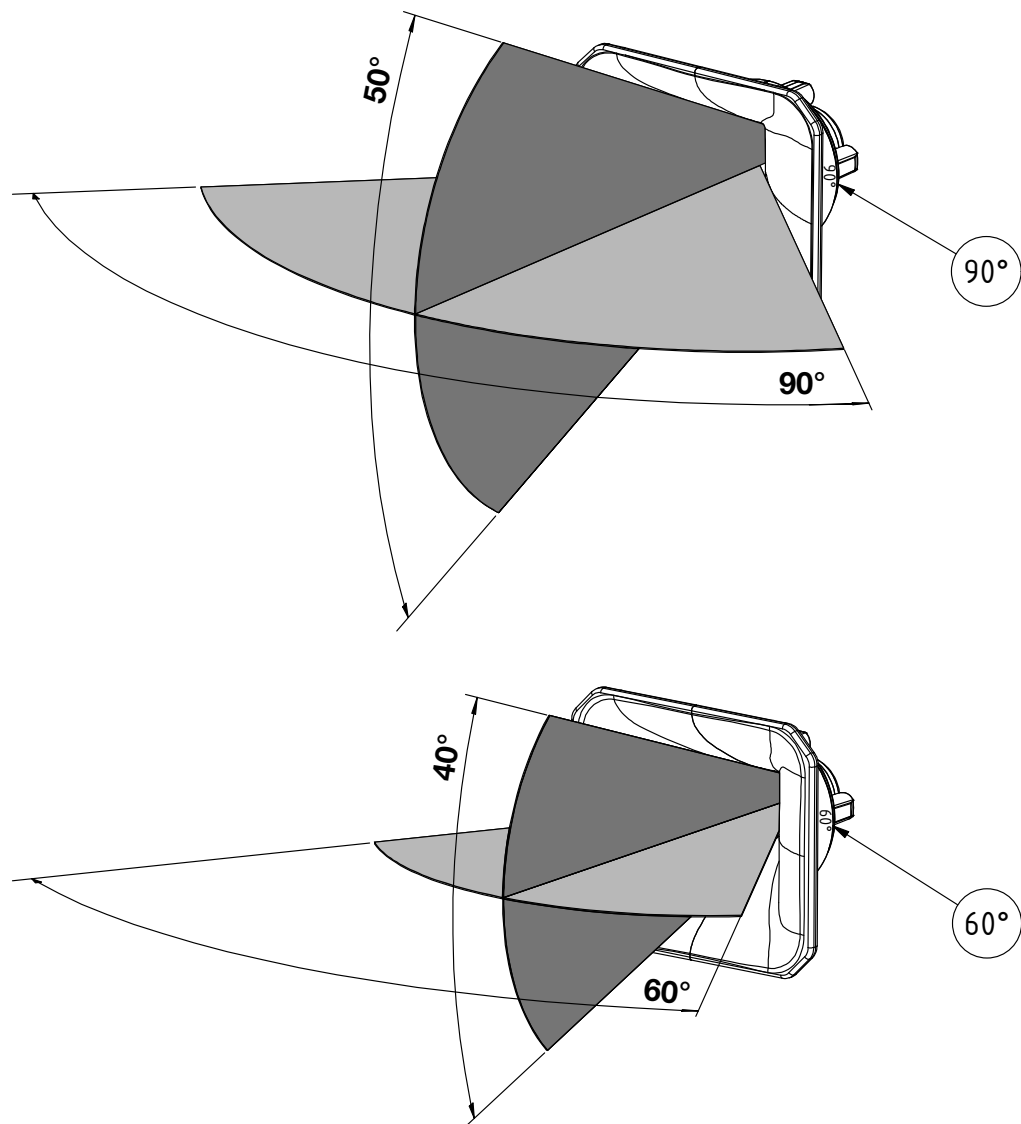


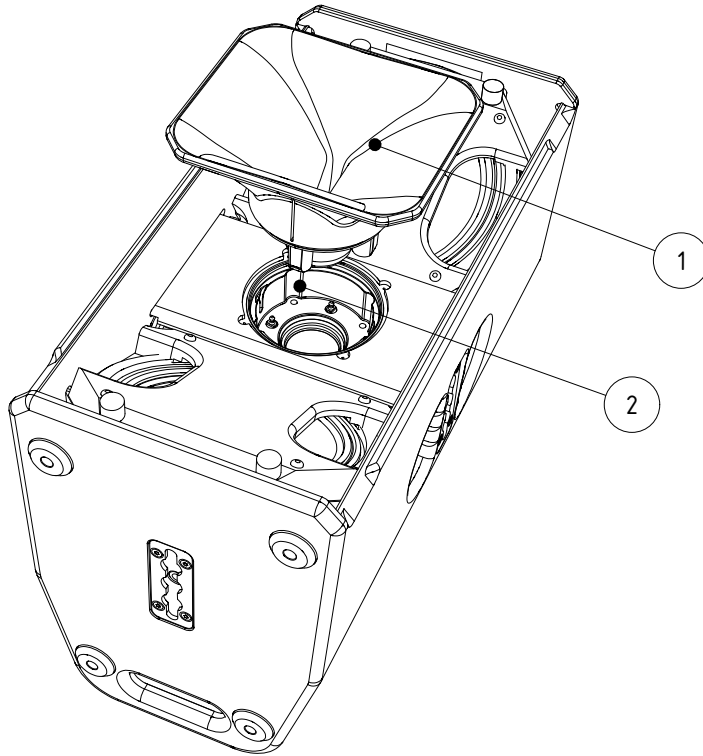
Figure 2.2.1 - Variants of the T20 horn cone





The modular design of the high frequency unit allows a quick change between the different characteristics of dispersion.

The entire high frequency unit consists of the horn cone (1), the horn base (2), the driver plate and the compression driver.



**Figure 2.2.2 - High frequency unit**

### 3. Technical specifications

#### 3.1 Data sheet

Drivers	2x 10" LF / 1x 1,4" HF
Frequency response	60 - 18000Hz
Power handling (program/Peak)	1000 / 2000W
Impedance	8Ω
Coverage angles (h x v)	90° x 50° or 60° x 40°
Max. SPL / 1m	138 dB
Dimensions (h x w x d)	606 x 300 x 400mm [23,9 x 11,8 x 15,7 in]
Weight	24,3kg [54 lbs]
Surface	Warnex textured paint

#### 3.2 Connection diagram

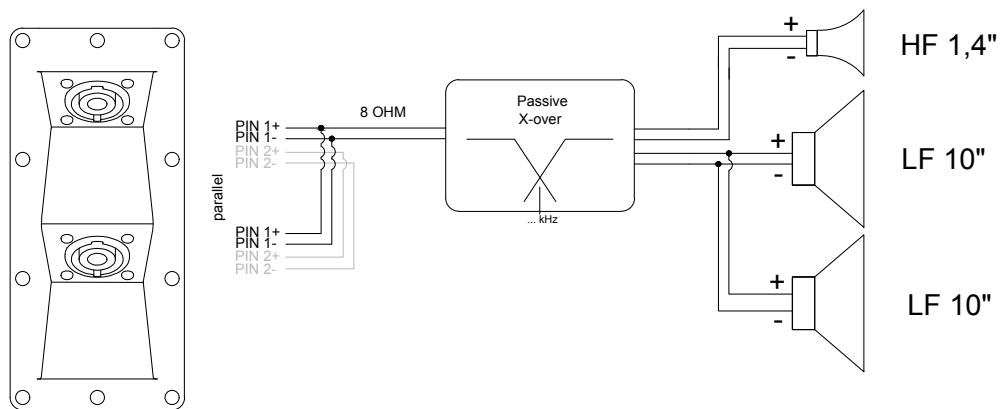


Figure 3.2 - Connection diagram

## 4. Commissioning

### 4.1 Setup

The T20 loudspeaker is designed for standing or hanging, vertical and horizontal operation. TWAUDIÖ provides a wide range of accessories to securely attach the loudspeaker.



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. Secure stacked loudspeakers properly so that they can be tipped by 10° in any direction without toppling.



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



Please note that when operating the T20 loudspeaker without front grill, the HF horn must additionally be secured against falling out! (Sticking)

## 4.2 Rotating and changing the HF horn

By default, the HF horn of the T20 loudspeaker is oriented so that the horizontal beam angle is 90° and the vertical beam angle is 50°. In some situations it may be advantageous to change the emission characteristics in the HF range. You can replace the standard high frequency horn of the T20 loudspeaker with an optional 60° x 40° version. Proceed as follows:

### 4.2.1 Rotating the HF horn

1. Place the T20 loudspeaker on its back, with the speaker grill facing up. Make sure to place the speaker on a clean, non-slippery surface.
2. Pull the front grill away from the loudspeaker using the lateral notches. The frontgrill is secured with a magnetic holder for tool-free assembly. Secure the speaker against lifting and slipping if necessary with a second person.
3. Pull the horn with the compression driver up and out of the speaker cabinet.
4. Turn the horn funnel 90°.
5. Insert the twisted horn funnel into the horn foot. To do this, press the horn funnel until it snaps back into the horn foot with the click mechanism. Then check the tightness of the horn funnel in the horn foot.
6. Lay the front grill flush on one side on the enclosure. Let the other side of the frontgrill slowly into the recess. Due to the strong holding force of the magnets, there is a danger of crush injuries.



Please note that when operating the T20 loudspeaker without front grill, the HF horn must additionally be secured against falling out! (Sticking)

#### 4.2.2 Changing the HF horn

1. Place the T20 loudspeaker on its back, with the speaker grill facing up. Make sure to place the speaker on a clean, non-slippery surface.
2. On the lateral notches, pull the front grill away from the loudspeaker. The front grill secured with a magnetic holder for tool-free assembly. Secure the speaker against lifting and slipping if necessary with a second person.
3. Pull the horn with the compression driver up and out of the speaker cabinet.
4. Insert the horn funnel to be changed into the horn foot. To do this, press the horn funnel until it snaps back into the horn foot with the click mechanism. Then check the tightness of the horn funnel in the horn foot.
5. Lay the front grill flush on one side on the enclosure. Slowly engage the other side of the front grill in the recess. There is a danger of crush injuries due to the strongholding force of the magnets.



Please note that when operating the T20 loudspeaker without front grill, the HF horn must additionally be secured against falling out! (Sticking)

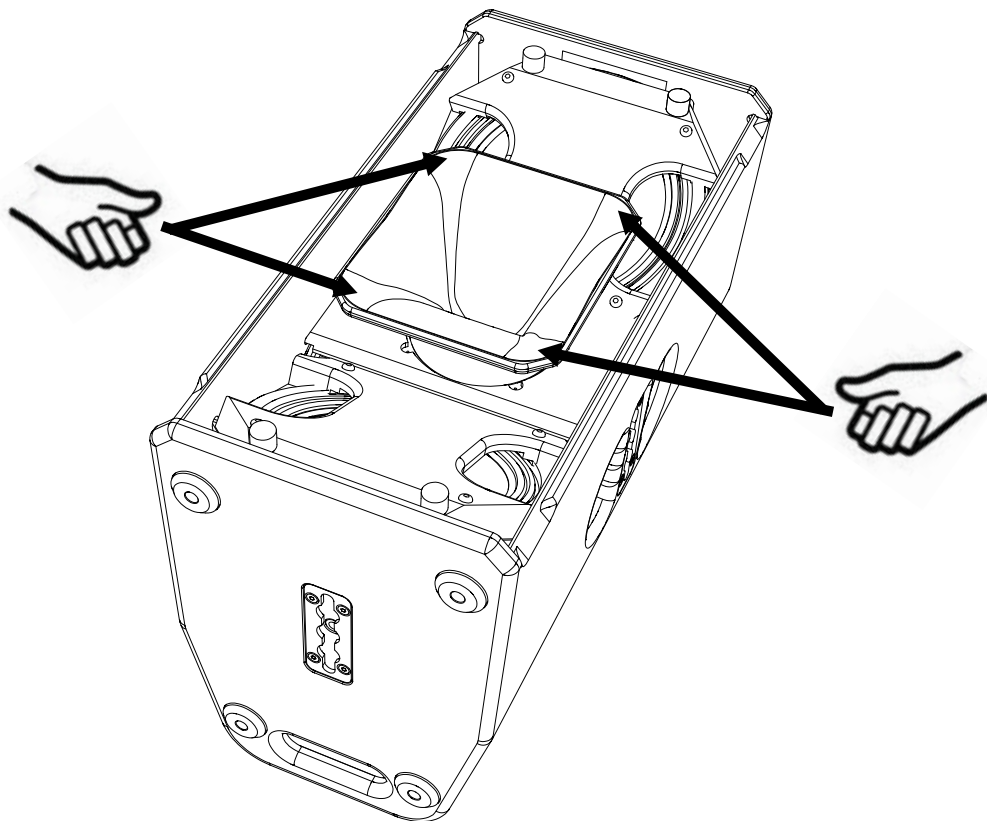


Figure 4.2.2 - changing the HF horn

### 4.3 Operation

Operation of the T20 loudspeaker 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 10.

### 4.4 Connecting the cable

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



**NOTE**

Ensure that the cable cross sectional area is sufficient (at least 1.5 mm<sup>2</sup>) to avoid power losses. TW AUDIÖ recommends using the loudspeaker cables available from TWAUDIÖ.

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 T20 loudspeaker can be found in section 3.2 ("Connection diagram") on page 10.

The internal wiring of the T20 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 T20 loudspeaker weighing over 20 kg [44 lbs.], two persons are required to handle and transport the unit.



### NOTE

To enable a single person to transport two T20 loudspeakers, TWAUDIÖ recommends using the CaseT20.

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 prevent the loudspeaker membrane from working properly. 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 TWAUDIÖ:

- CaseT20 (flightcase for two T20)
- CoverT20 (protective cover)

The original packaging is not suited for permanent storing and transporting.

## 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**

- T20-60
- T20-90

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, January 1st, 2017

A handwritten signature in black ink, appearing to read 'T. Wüstner', written over a horizontal line.

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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