

## Technical description and assembly instructions

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## Ultima 800 DIY Edition

**Teufel**

# Contents

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# General notes and information

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## Notice

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Version 1.0

Dezember 2013

## Original packaging

If you wish to exercise your eight-week right of return, we ask that you be absolutely sure to hold onto the packaging. We can only accept the return of the speakers WITH THE ORIGINAL PACKAGING.

**Empty boxes are not available!**

## Complaints

In case of complaint we will need the following information to process your enquiry:

### 1. Invoice number

Can be found on the sales slip (enclosed with the product) or on the order confirmation received as a PDF document, e.g. 4322543

Many thanks for your support!

## Contact

For questions, suggestions or any other issues please contact our customer service department:

Lautsprecher Teufel GmbH

Gewerbehof Buelowbogen · Buelowstraße 66

10783 Berlin (Germany)

**Phone: 00800 - 200 300 40 (toll-free)**

**Fax: +49 (0)30 / 300 930 930**

**E-mail: [service@teufelaudio.com](mailto:service@teufelaudio.com)**

**[www.teufelaudio.com](http://www.teufelaudio.com)**

## Proper use

Only assemble and use the speakers as described in these operating instructions. Any other use will be deemed as not in accordance with the instructions and may lead to damage of property or even persons. The manufacturer accepts no liability for damage caused by use not in accordance with the instructions.

The speakers are intended for domestic use.



Before you begin with assembly and operate the speakers for the first time, please first carefully read through the safety notes and operating instructions. Only in this way, can you ensure that all functions are used in a safe and reliable manner.

Keep the operating instructions safe and pass them on to anyone who may own the unit after you.

# For your safety

## Signal terms

You will encounter the following signal terms in these operating instructions:

### **WARNING**

This signal term indicates a hazard with moderate risk that, if not heeded, may result in death or a severe injury.

### **CAUTION**

This signal term indicates a hazard with low risk that, if not heeded, may result in minor or moderate injury.

### **NOTE**

The signal term warns you of potential damage to property.

## Safety notes

### **WARNING**

Children can become trapped in the packing film when playing and suffocate.

- Do not allow children to play with the unit or the packing film.
- Ensure that children do not remove small parts from the unit or take them off of the unit (e.g. control knobs or plug adapters). They could swallow the parts and choke.
- Never allow children to operate electrical units unsupervised.

### **CAUTION**

Incorrect location may result in damage.

- Never use the unit unmounted in vehicles, in unstable locations, on wobbly stands or furniture, on underdimensioned brackets etc. The speakers could tip or fall down and cause injury to persons or be damaged.
- Place the speakers in such a way that they cannot be knocked over unseen and make sure that the cables do not pose a trip hazard.



Extended listening at high volumes may lead to hearing loss. This may have psychological consequences and also cause physical injury. Children and pets are particularly at risk.

- Set your signal source unit volume control to a low setting.
- When the volume is set high, always keep a certain distance from the unit and never place your ear directly on the speaker.
- To avoid damage to health, avoid extended listening at high volumes.

### **NOTE**

- Only use the speakers in indoor areas.
- Do not operate the speakers in wet rooms and protect them against dripping and spraying water. Also take care not to stand vases or other containers filled with liquid on or near the speaker in order to avoid liquid getting into the case.
- Do not place the unit near sources of heat (e.g. heaters, ovens, other heat generating equipment such as amplifiers etc.).

# Preparation

## Product contents

Open the box and carefully remove the packaging material. When taking out the parts, make sure that you do not reach into the diaphragms or damage the crossovers.

In the housing box:

- ① 1 preprimed housing
- ② 1 set of feet (2 base plates, 4 spikes, 4 fastening screws, 4 threaded bolts, 1 size 6 Allen key)
- ③ 4 screw-in sleeves
- ④ 1 set of cloth grilles (2 for the front, 1 for the back)  
3 damping wool mats (not shown)

In the equipment box:

- ⑤ 1 tweeter
- ⑥ 1 mid-range speaker
- ⑦ 2 active low-range speakers
- ⑧ 4 passive low-range speakers
- ⑨ 2 crossovers
- ⑩ 2 cable distributors
- ⑪ 1 connector terminal

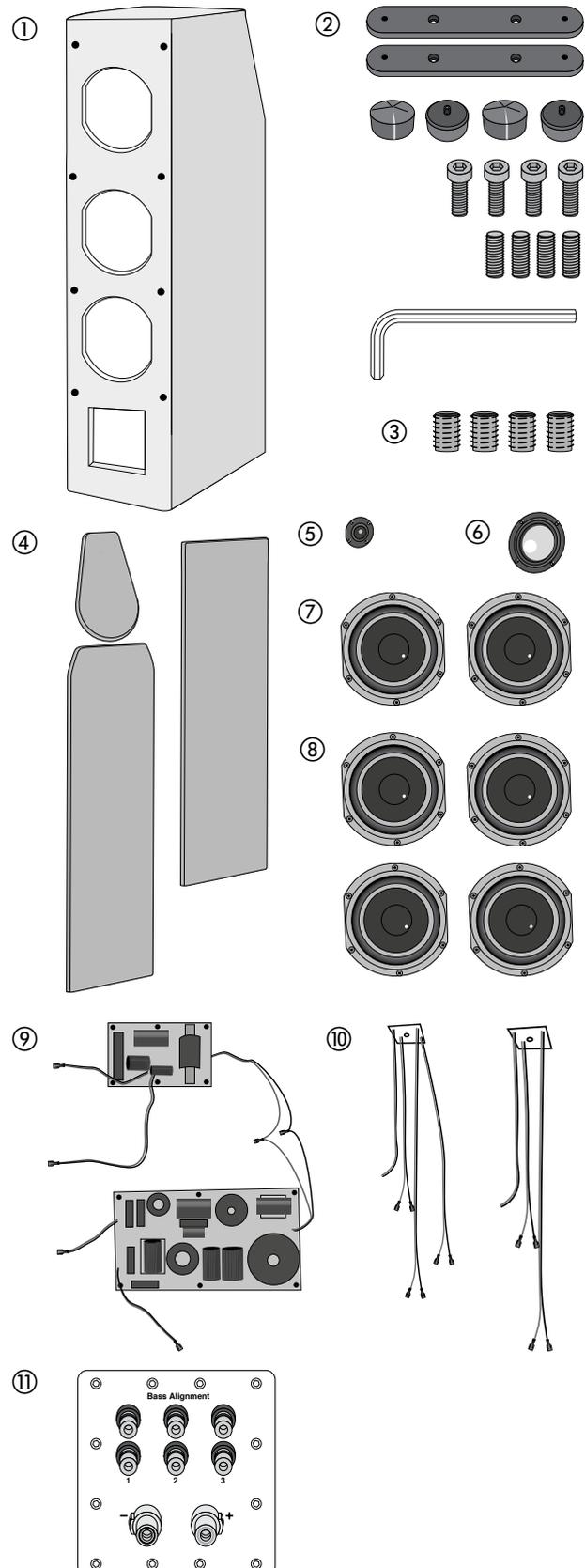
Not shown:

- 1 set of screws
- 8 frame pegs

### NOTE

Due to differing customer requirements, Ultima 800 DiY speakers are shipped without connector cables. You can find suitable cables in our web shop ([www.teufel.de](http://www.teufel.de)).

- Check that all items have been delivered and that nothing is damaged. If anything is missing or damaged, please contact our service department (see page 3).
- Do not operate any damaged parts.



# Assembly

## Basic information

The Ultima 800 DiY is a perfectly aligned speaker concept. Even the smallest details are instrumental in producing the perfectly aligned overall concept of this reference speaker. For this reason, please keep in mind that any modifications to the housing, the crossovers or drivers may negatively affect the sound properties.

Therefore, please strictly adhere to these assembly instructions and only perform modifications if you have in-depth experience with speaker building.

When assembling your Ultima 800 DiY there are a few basic aspects that you should keep in mind:

- Read through the assembly instructions completely before setup to get an overview of the steps and components.
- Complete the steps one at a time. If you are unsure or have questions, stay on the safe side and read through the steps again.
- Prepare your work area accordingly for the planned setup. Make sure there is enough space and that you have the necessary tools on hand.
- Mount one speaker at a time.
- Only hand tighten all screws that have been screwed into the housing; this prevents over-winding.

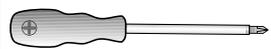
## Assembly steps

### 1. Installing the screw-in sleeves

	Allen key size 8
	4x screw-in sleeves ③

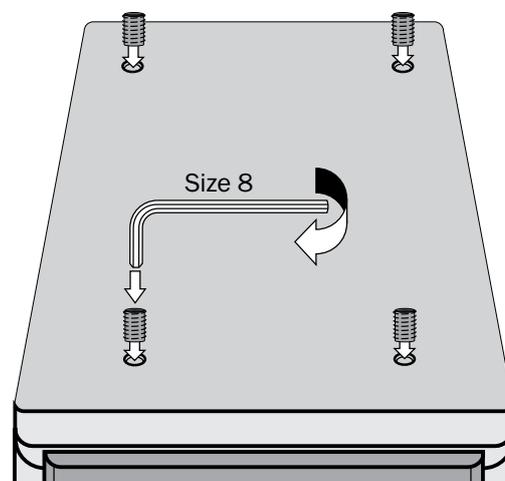
- 1.1 Turn the speaker housing upside down and carefully place it on a blanket or similar to prevent the sensitive surface from being damaged.
- 1.2 Screw the 4 screw-in sleeves into the holes on the base plate with the Allen key. Make sure you countersink the screw-in sleeves completely.

## Required tools

	Phillips screwdriver PH2
	Size 4, 6, 8 Allen key
	Hot-glue gun
	Wood glue

## Finish

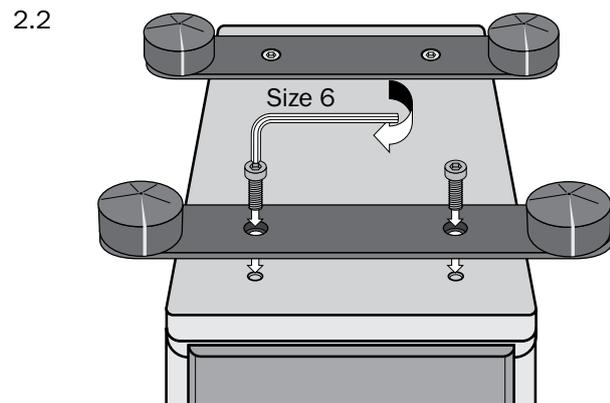
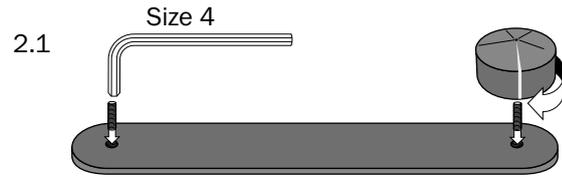
Your Ultima 800 DiY speaker housing is pre-primed ex works. This means that you can lacquer, laminate or veneer the housing before assembly without having to spend considerable time priming the MDF surfaces. In this case, make sure that the surfaces to be treated are dry and free of dust and grease.



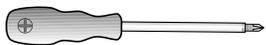
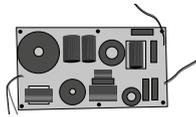
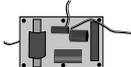
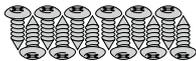
## 2. Mounting the feet

	Allen key size 4 and 6
	2x base plates
	4x spikes
	4x fastening screws
	4x threaded bolts

- 2.1 Screw the 4 threaded bolts onto the 2 base plates with the Allen key (size 4). Then screw the spikes onto these threaded bolts.
- 2.2 Use the fastening screws and Allen key (size 6) to screw the premounted base plates tightly into the screw-in sleeves in the base plate.
- 2.3 You can compensate any irregularities in the floor later on by screwing the spikes in and out somewhat.



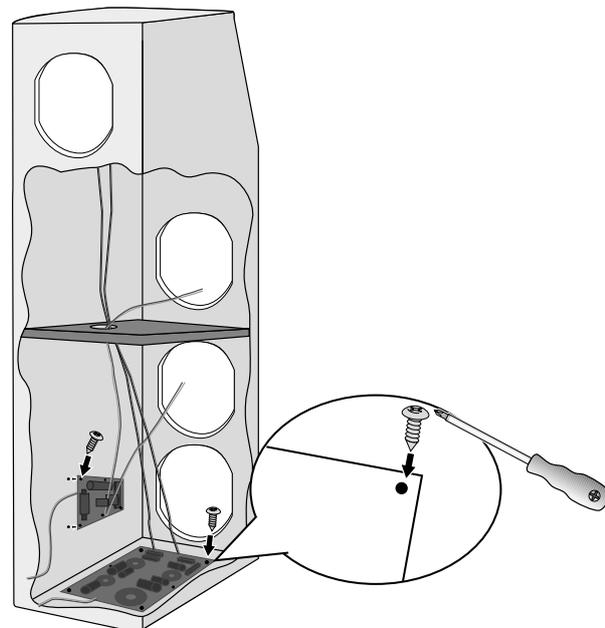
## 3. Mounting the crossovers

	Cross-slot PH2
	Large crossover for medi- um-range speakers and tweeters
	Small crossover for active bass speakers
	12 wood screws

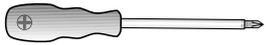
### CAUTION

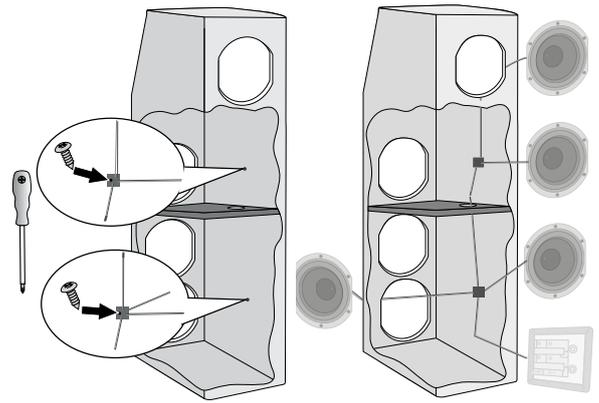
Take care not to damage the sensitive components during installation.

- 3.1 Secure the large crossover on the base plate with 6 wood screws. Use the prepared holes in the process.
- 3.2 Viewed from the back, secure the small crossover to the left housing wall with 6 wood screws as well. The corresponding holes have been predrilled too.

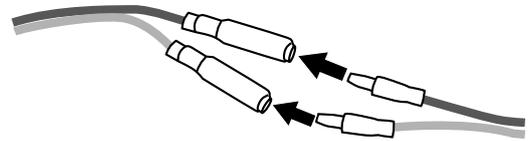


## 4. Mounting the cable distributor

	Cross-slot PH2
	Cable distributor with 3 connector cables for the upper passive low-range speakers
	Cable distributor with 4 connector cables for the bottom passive low-range speakers
	2 wood screws



- 4.1 Use one wood screw to mount each circuit board for the two cable distributors on the right inside wall (viewed from the back). The holes have been predrilled. The cable distributor with the 4 connector cables should be facing down.
- 4.2 Run the cable with the plug from the bottom cable distributor through the hole in the intermediate panel and connect the plug with the counter piece from the other cable distributor.

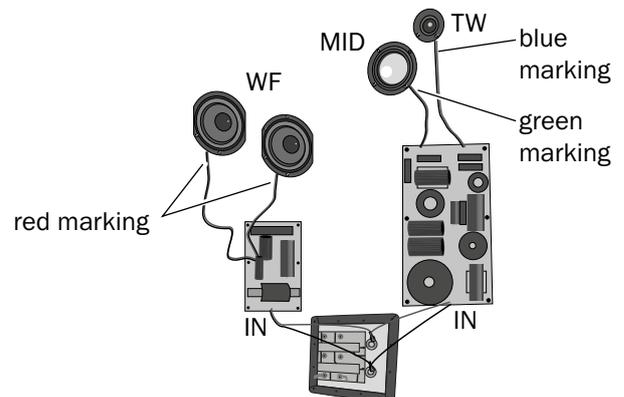
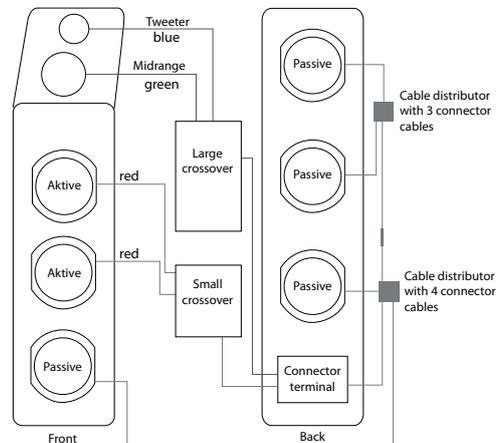


## 5. Laying the cables

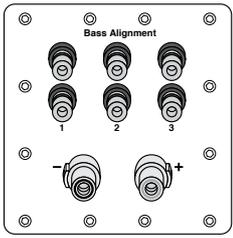
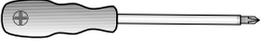
- 5.1 Lay all cables as shown in the wiring diagram on the right and let the cable ends protrude out of the openings for the speakers and the connector terminal.

The designations on the circuit boards have the following meaning:

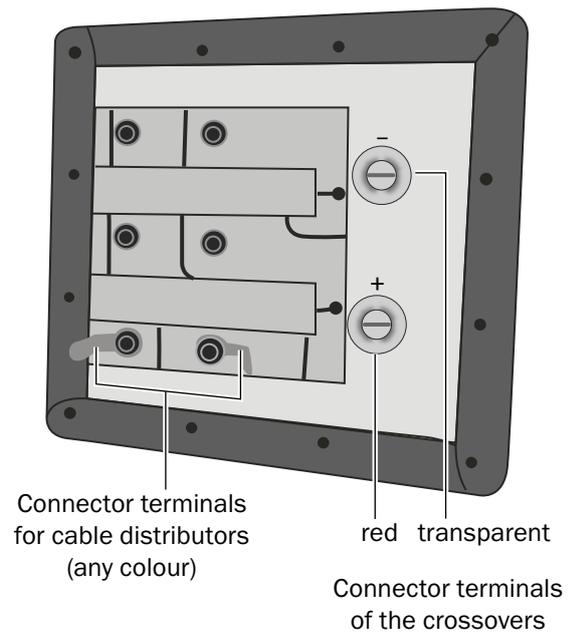
TW	Tweeter	High-range speaker (blue)
MID	Midrange	Mid-range speaker (green)
WF	Woofers	Active low-range speaker (red)
IN	Input	Connector terminal



## 6. Wiring the connector terminal

	Connector terminal
	Cross-slot PH2
	12 wood screws

- 6.1 Two connector cables for the two crossovers are paired and end in one cable lug each. Stick the cable lug of the red marked cable pair on the connector terminal of the red pole terminal (+) and the other one on the connector terminal of the black pole terminal (-) on the inside of the connector terminal (see figure).
- 6.2 Clamp a connector cable from the lower cable distributor onto one of the two connector terminals of the bass alignment on the inside of the connector terminal (see figure). The cable colour is not relevant in this respect as the circuit operates independently from the polarity. Afterwards, proceed with the next connector cable in the same manner.
- 6.3 Screw the connector terminal securely onto the speaker housing. Be careful while doing so and do not overwind the screws.



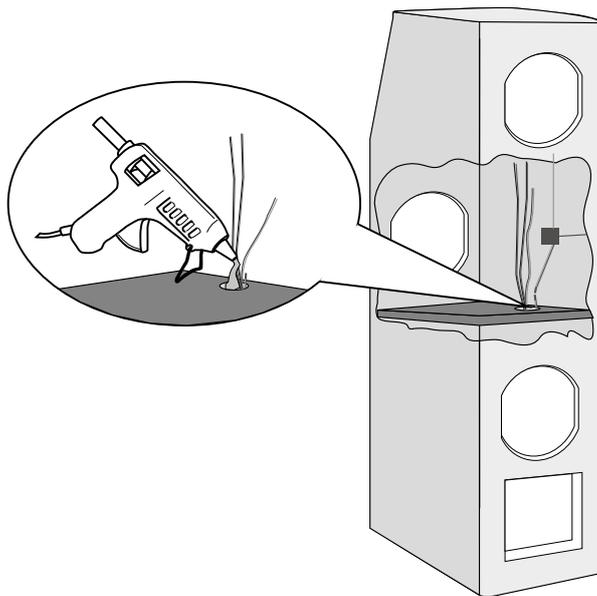
## 7. Sealing the holes and inserting damping wool

	Hot-glue gun
Damping wool	3 mats

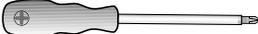
### CAUTION

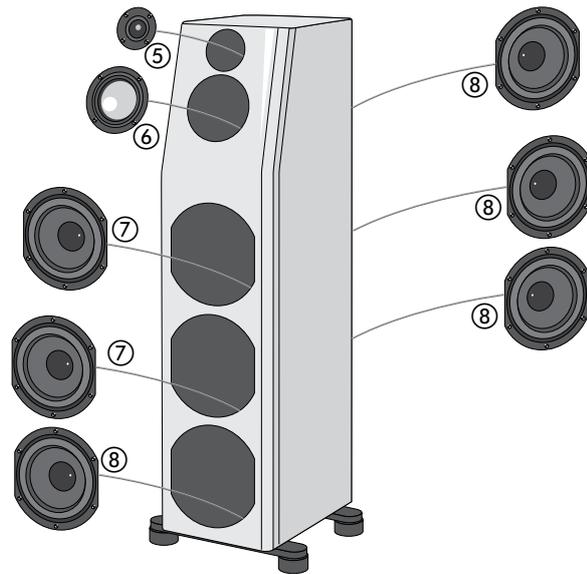
Let the hot glue cool off sufficiently before you touch it or insert the damping wool.

- 7.1 Make sure that all cables are protruding sufficiently. Then seal the holes in the intermediate panel and in the mid-range speaker chamber where the cables are guided through using hot glue. Do not use silicone for sealing as the sensitive parts of the speakers could be corroded by the silicone vapour and be damaged as a result.
- 7.2 Lay the small damping wool mat (25 x 25 cm) loosely in the housing of the mid-range speaker and the two large damping wool mats (25 x 85 cm) loosely in the upper and lower low-range housing.



## 8. Connecting and installing the speakers

	1 tweeter ⑤
	1 mid-range speaker ⑥
	2 active low-range speakers ⑦ Identifiable by the thinner drive magnets.
	4 passive low-range speakers ⑧ Identifiable by the thicker drive magnets.
	Cross-slot PH2
	44 wood screws



8.1 Now connect the speakers one by one.

To do so, stick both cable lugs of the previously laid cables on the connector terminals of the speakers. The different widths of the cable lugs and connector terminals prevent any confusion of the cables.

### NOTE

Exercise caution when mounting the speakers.

- When tightening the screws, be absolutely sure not to puncture the diaphragm or seam with the screw driver or to overwind the screws.

8.2 Use the enclosed screws to screw the speakers onto the speaker housing.

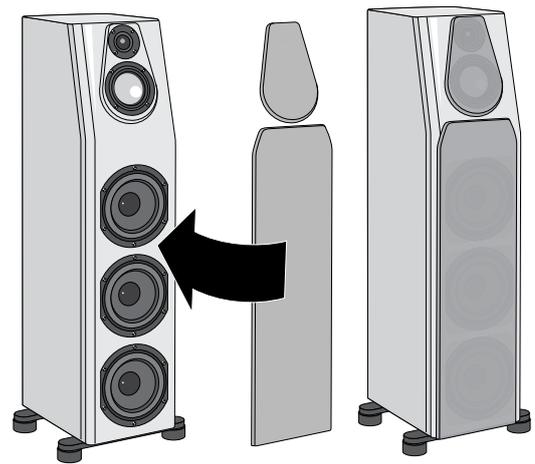
## 9. Mounting the speaker covers

### 9.1 Front side

- Magnets hold the front speaker cloth grilles onto the front of the speaker; as a result, they can be attached and removed with ease anytime.

#### NOTE

Do not reach into the very sensitive diaphragms when attaching and removing the cloth grilles.



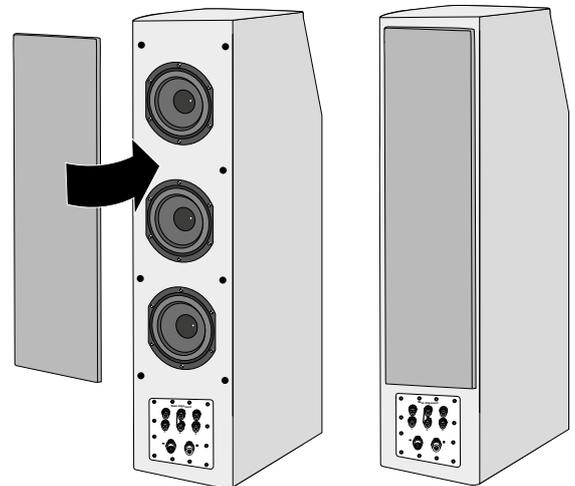
### 9.2 Back side



Wood glue

- 8 frame pegs are included for the back side; they are inserted in the corresponding holes. Fix them in place with 1-2 drops of wood glue. Once dry, you can now mount the rear cover here.

The first speaker box has now been completely assembled and is ready for operation. Follow the same steps with the second speaker box.



# Setup and connection

## Location tips

### CAUTION

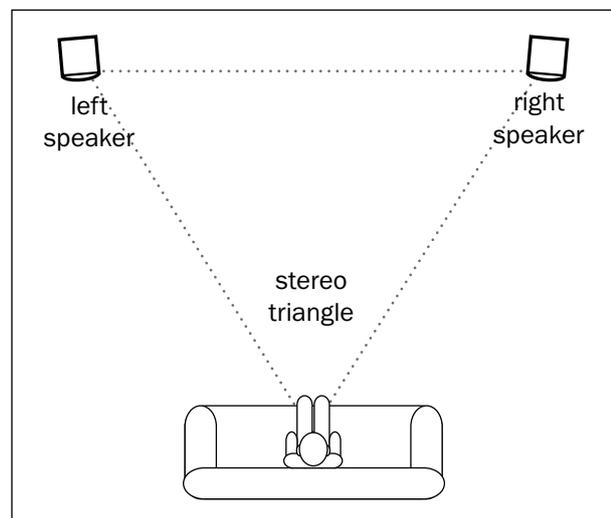
Set up the speakers so that there is no risk of them being knocked over unintentionally and the cables don't represent a tripping hazard. Otherwise, there is a risk of injury.

- Select a stable, level base.
- Make sure that the environment is clean and free from dust.
- Avoid placing the unit close to sources of heat or in direct sunlight.
- Do not place any heavy objects on the cables or the speakers.

The following data concern an “ideal listening room”, in which the listener sits in a central position at a sufficient distance in front of the speakers (see the adjacent graphic) and no objects (tables or the like) are located in between. Maintain a sufficient distance to the rear wall and the side walls to prevent interfering reflection. Unfortunately, the room, furnishings or other circumstances do not always allow for such an ideal arrangement.

Modern amplifiers offer a variety of possibilities for electronically compensating losses associated with the arrangement. The following general rule applies: You can always experiment on what works best in your listening room in terms of sound and appearance based on our recommendations. Let your ears (and eyes) decide!

The speakers should be situated to the left and right of the listener and if possible, form an equilateral triangle with the listener – the so-called stereo triangle (distance from the listener = distance between the speakers). The speakers should project sound straight into the room or be arranged slightly towards the listener.



## Connecting the cables

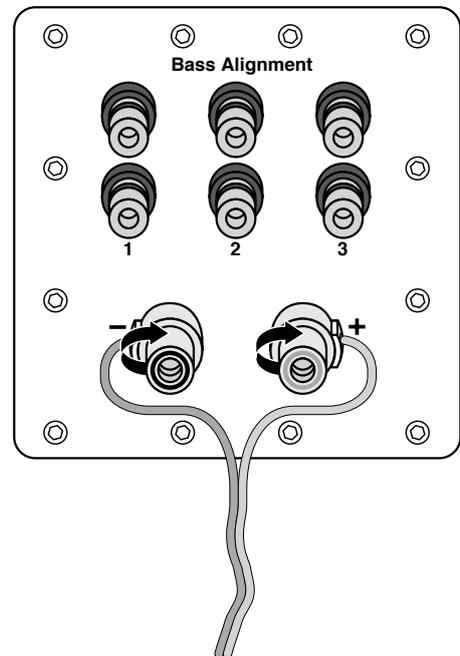
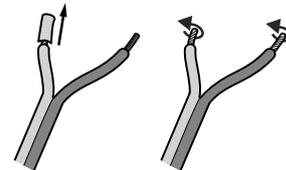
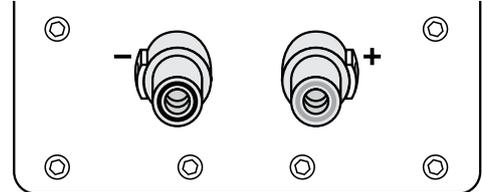
1. Turn your amplifier off.
2. Lay the speaker cable from your amplifier to each of the speakers. Use a high-quality double wire speaker cable with marked strands for this. The cross-section should amount to at least 2.5 mm<sup>2</sup> and no more than 10 mm<sup>2</sup>.
3. The connector terminal with 2 clamps is located on the back side of the speakers. You can connect the speaker cables here with pin plugs, corresponding furcated cable lugs or via a direct connection. Direct connection only is described here. The terminals are each marked red (+) and black (-).

### NOTE

Make sure the polarity is correct. Otherwise the sound quality will suffer.

Connect each of the speaker outputs of your amplifier with the like-coloured clamps of the connector terminal.

4. Split the wire down by approx. 30 mm on both ends and remove approx. 10 mm of insulation each. Twist the wire so that no strands are protruding.
5. Turn the connector terminal counterclockwise until loose. Run the stripped cable end into the now visible hole. Close the terminal by turning it clockwise. The cable has now been clamped in place.
6. Connect both cables to the speakers this way.
7. Connect the speaker cables to your amplifier. You should find corresponding information in the operating instructions for your device.



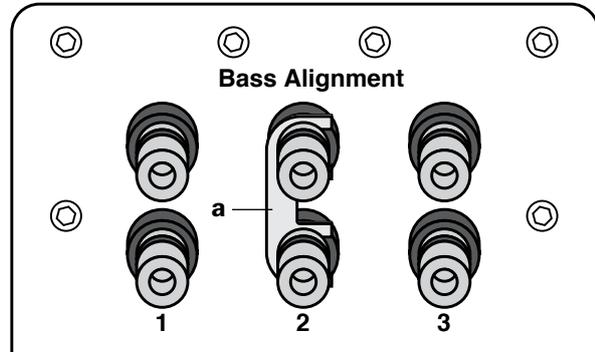
## Bass alignment

With your Ultima 800 DiY speakers, you can adjust the bass performance in order to adapt the sound to the unique room situation or the individual sound performance of the amplifier used.

3 pairs of terminals are provided for this purpose, which can be connected vertically with a bridge.

Position of the bridge (a)	Bass performance
no bridge	maximum bass
Terminal pair 1	slightly damped bass
Terminal pair 2	moderately damped bass
Terminal pair 3	highly damped bass

- Connect the desired terminal pair with the bridge (a) or leave out the bridge to adjust the bass performance of the speaker according to the above table. You can remove or relocate the bridge during operation.



## Protecting the environment

### Disposing of the speakers



**Used units must not be disposed of with household waste!**

If the unit is no longer operational, every consumer is required by law to dispose of used units separately from household waste, e.g. at a collection point run by the communal authority/

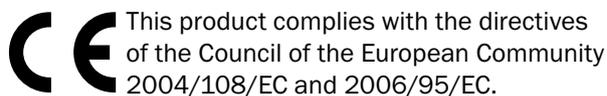
borough. In this way it is ensured, that used units are properly recycled and that negative consequences on the environment are avoided.

For this reason, electrical equipment is labelled with the displayed symbol.

## Technical data

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Housing volume	43 litres
Housing dimensions W x H x D	220(310)x980x374 mm
Weight	31.2 kg
Pulse load capacity (IEC - short term)	350 watts
Sensitivity (2.83 V / 1 m)	86 dB
Minimum recommended amplifier output	100 watts
Maximum noise pressure	104 dB/1m
Rated impedance	4 - 8 $\Omega$
Frequency range	42 - 27.000 Hz
Crossover frequency internal crossover	350 / 2000 Hz
Tweeter	Number: 1, $\varnothing$ 33 mm, material: special cloth
Mid-range speaker	Number: 1, $\varnothing$ 100 mm, material: titanium full membrane
Low-range speakers (2x active, 4x passive)	Number: 6, $\varnothing$ 170 mm, material: rohacell carbon sandwich cone
Acoustic principle	Three-way
Housing design	Variable passive diaphragms
Housing material	22 mm MDF
Connector terminals	Screw-type terminals with bass alignment function, suitable for pin plugs
Maximum cable diameter	10 mm



Technical changes reserved!

# Teufel

For questions, suggestions or other issues please contact our customer service department:

**Lautsprecher Teufel GmbH**

Gewerbehof Buelowbogen - Ausgang D1  
10783 Berlin (Germany), Buelowstr. 66

Tel.: 00800 200 300 40 (toll-free)

Fax: +49 (0)30-300930930

[www.teufelaudio.com](http://www.teufelaudio.com)

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