

# Sombetzki

Electrostatic Near-Field Loudspeaker

---

## ESL HOME



Owner's Manual

# Electrostatic Near-Field Loudspeaker

## Table of Contents

1	Introduction	3
2	System description	4
3	General information	5
3.1	Policies	5
3.2	Safety instructions	5
3.3	Unpacking	6
3.4	Out of the box	6
3.5	Cleaning	6
3.6	Warranty	6
3.7	Warranty extension	6
4	Installation	7
4.1	Acoustic influences	7
5	Connecting	8
5.1	Mains connection	8
5.2	Amplifier connection	8
6	Set up	9
6.1	Orientation	9
6.2	Settings	11
6.3	Simulating headphones (stand-alone installation)	12
6.4	Adjusting bass intensity	13
7	Specifications	14

# Electrostatic Near-Field Loudspeaker

## 1 Introduction

Dear Customer!

Thank you for the confidence you have shown us in acquiring this speaker. You have chosen a quality product that meets the highest requirements both phonetically and technically.

There is no need for the usual insertion time of this electrostatic transducer system since this has already been done in our company.

**Please read the technical description and operating instructions to fully utilize the sound capabilities of your ESL HOME and ensure safe operation.**

# Electrostatic Near-Field Loudspeaker

## 2 System description

The ESL HOME has been developed for music reproduction in a quality that did not exist previously. One single electrostatic loudspeaker chassis with a frequency range of 37 Hz - 20 kHz is used as a sound transducer. As a result, phase shifts between low, mid and high tweeters, such as occur with conventional multi-path systems, are excluded from the outset. This leads to in a further advantage, the possibility of a very close monitoring position to the listener. Known disadvantages of loudspeaker reproduction in the room such as resonances, reverberation, disturbing wall, ceiling and ground reflections of the sound waves, have no influence on the listener. The use of an ultrathin ( $1.5 \mu\text{m} = 1.5 / 1000 \text{ mm}$ ), and thus quasi massless film for the manufacture of the loudspeaker diaphragm, makes the use of electrostatic headphones, with their known disadvantages such as "in head location" and lacking (carrying) comfort - unnecessary in most cases.

## 3 General Information

### 3.1 Policies

This product complies with the requirements of the applicable European and national directives (Electromagnetic compatibility 89/336 / EEC).



Products made by us belong to the B2C class of the WEEE directive and do not belong in household waste!

# Electrostatic Near-Field Loudspeaker

## 3.2 Safety instructions

As with the use of other electrical equipment, it is essential to observe the following basic operating instructions, safety instructions and warnings in order to ensure the optimal functioning and operational safety of the system!

- Read these instructions and keep them well.
- For safety reasons the unauthorized conversion and / or modification of the loudspeaker system is not permitted.
- Electrical appliances should not be operated by children
- Only operate the device with the mains voltage specified on the connection fields.
- Do not install near any sources of heat.
- Do not expose the device to direct sunlight.
- Do not place the device in an area with high humidity.
- Never insert objects into device openings.
- Ensure that no fluids can penetrate the interior of the device.
- Danger of electric shock if the device is open.
- Always carry out repairs by qualified personnel.
- Never clean the system with a wet or spray cleaner.

## 3.3 Unpacking

Carefully unpack the loudspeaker and check it for visible damage caused by improper transport. If necessary, immediately report this immediately to your supplier. Keep the package in case the speaker needs to be re-transported at a later date.

## 3.4 Out of the box

- Loudspeaker
- Power cord
- Technical description and operating instructions

# Electrostatic Near-Field Loudspeaker

## 3.5 Cleaning

The surfaces of the electronics housing can be cleaned with a clean, slightly moistened, lint-free, soft cloth.

## 3.6 Warranty

Opening the device by unauthorized personnel will invalidate the warranty. No warranty claims exist for damage caused by overload, improper handling or external influences.

## 3.7 Warranty extension

As the first owner, you can extend the statutory guarantee of 2 years for a further 3 years. Please visit our homepage and complete the warranty extension form:

[www.sombetzki-elektrostaten.de/garantieerweiterung.html](http://www.sombetzki-elektrostaten.de/garantieerweiterung.html)

# Electrostatic Near-Field Loudspeaker

## 4 Installation

**ESL HOME** is designed for ground mounting in close proximity to the listener. The distance between the loudspeaker and the listener should not exceed 120 cm. A distance of 60 - 100 cm (a) is optimal. The distance between the two speakers can be between 60cm and 100cm (b). In doing so, the loudspeakers should be aligned to the listener (see figure 1).

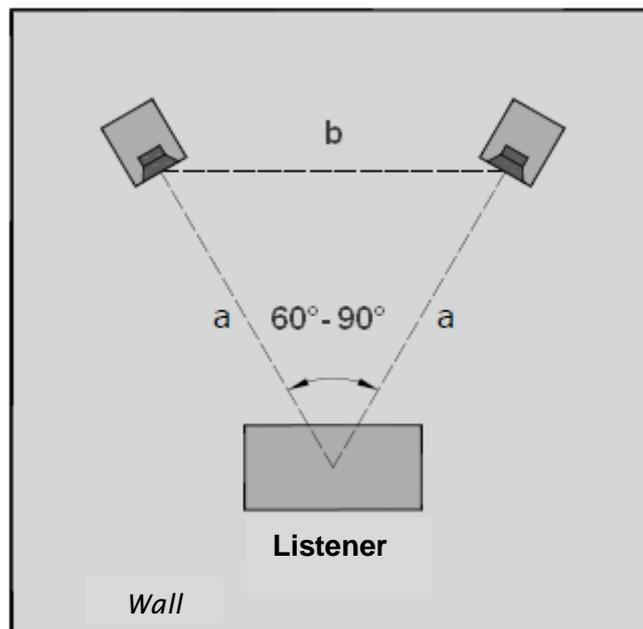


Figure 1: space area

### 4.1 Acoustic influences

The **ESL HOME** is a so-called dipole loudspeaker. Its sound radiation is identical front and rear (as acoustically open), - but relative to the other side - phase-rotated by 180°. Thus, the transducer is subject to the "acoustical short circuit". This increases in intensity with decreasing frequency. The transmission behavior of the **ESL HOME** is therefore linearized using the built-in frequency correction circuit. The effect of this linearization is optimized to the recommended listening range. At the same time, however, it is also influenced by the immediate spatial

# Electrostatic Near-Field Loudspeaker

environment (walls, furniture, etc.). On these objects, the sound waves, in particular those of the low frequencies, are reflected (mirrored) and thus perceived by the listener as a powerful reproduction. A monitoring position without reflectors (for example in the center of the room) is therefore not recommended.

## 5. Connecting the speakers

In this chapter, you will learn how to connect your speakers to the power supply and to the signal source.

### 5.1 Mains connection

The **ESL HOME** is an electrostatic transducer and operates with a diaphragm charged at a high voltage of approximately 6 kV. The required voltage supply is taken from the power supply network and brought to the required value by means of a voltage multiplier. The power consumption is thereby small (under 0.3 watts), so that a power switch was omitted deliberately. On the other hand, an electrostatic sound transducer needs a certain charging time (several hours) after the commissioning in order to provide the maximum sound quality. It is therefore advisable to keep the **ESL HOME** permanently to the mains.

### 5.2 Amplifier connection

The **ESL HOME** has two pairs of isolated pole terminals (4mm), which can be connected to your amplifier (see figure 2). In order to meet the respective living and installation situations (e.g. sofa or armchair), connections for amplifiers and power supply are available on both narrow sides of the electronic housing. One side is *always* kept closed by a screwed cover (logo plate). This is necessary for *safety reasons*. The *trained dealer* will set up the required connection area for your needs. ***Please do not try to do the conversion yourself if you are not an expert. Never operate your ESL HOME without the cover.***

# Electrostatic Near-Field Loudspeaker



Figure 2: One of two connection panels

Please note the maximum power rating of the **ESL HOME** when connecting your amplifier (see technical specifications). To achieve the highest sound quality, high quality amplifiers should be selected. The ESL HOME is not "impedance critical". Both tube and transistor amplifiers are suitable. "Single Ended" amplifiers have been successfully tested.

## 6 Set up

### 6.1 Orientation

As mentioned in point 4 (Installation), your ESL HOME will be placed close to the listening position. For this purpose, two example of placement option are given:

- Single place (armchair, chair, etc.)
- Multi-seat arrangement (sofa, seating groups, etc.)

#### Single place

Before you begin setting up your **ESL Home**, you need to locate the **left and right speakers**. You will find the serial number on the LOGO shield. It ends with a letter ("L" or "R"), which means *left* or *right*. Your **ESL HOME** will set up with the longer side of the electronic housing parallel to your left and right side. In this way, little living space is "lost" (see graph 3). The connection panel is now located on the narrow side facing the wall (factory version). Now move your **ESL HOME** so far forward and to the side that you can perform the settings and angle settings described in point 4.

# Electrostatic Near-Field Loudspeaker



Figure 3: Installation at the listening position (single user)

## Multi-seat arrangement

Your **ESL HOME** is placed parallel to the seat with the narrow side of the electronic housing. The places next to you are "blocked". Position your **ESL HOME** in away that the height-adjustable pipe is facing the inside (facing the seat). Under this prerequisite, you can adjust the optimum listening position by turning the speaker heads. To ensure that the connection cables do not run in the "wrong" direction during this installation, the opposing connection panel can be released in order to carry out the cabling (see section 5.2).

***Please do not forget to screw on the cover (LOGO) of the unused panel before restoring the power supply. Never operate your ESL HOME without this cover.***



Logo Cover: second connection panel

# Electrostatic Near-Field Loudspeaker

## 6.2 Settings

### Height adjustment

The optimum listening position relative to the height is located in the middle of the transducer. The loudspeaker head is height-adjustable so that you can adjust your center position on different seating areas. You will find a hand wheel on the pipe side of the head. Rotate to the left to loosen it. Now you can touch the head with both hands and move up or down and then tighten it by turning the wheel to the right. The displacement range is approx. 20 cm. (See figure 5).



*Figure 5: Hand wheel on head*

### Horizontal angle

An additional handwheel is located on the electronic housing (see figure 6). After you have loosened it (turn to the left), the loudspeaker head can be rotated about 90° around the tube axis. This allows the transducer to be angled to your ears (mentioned in point 4). Try different angles. The benchmark is your personal "taste". However, it should be noted that both "heads" should be at approximately the same angle to you. For this purpose, read off the angle at the lower end of the pipe and set the same value on the second **ESL Home** (see figure 7).

# Electrostatic Near-Field Loudspeaker



Figure 6: Handwheel on electronic housing



Figure 7: Setting aid angle scale

## 6.3 Simulating headphones (stand-alone mode)

Place the loudspeakers parallel to each other: The transducers are exactly at ear level. Then the angle to your face is  $90^\circ$ . The difference to an attached headphone is now (acoustically) only at the distance of the sound transducer to your ears. In this position, so-called dummy head recordings that were originally produced for headphone playback can be listened to in adequate quality. Recent binaural+ recordings also benefit from this lineup.

# Electrostatic Near-Field Loudspeaker

## 6.4 Adjusting bass intensity

The reproduction intensity of the low frequencies depends on the set-up (see Section 4 ff) and the amplifier used (such as a tube or transistor amplifier).

With the switch mounted on one connection panel, the bass can be raised by 3 dB (B + position) in the range of 40 to about 70 hertz.



*Figure 8: Bass boost*

# Electrostatic Near-Field Loudspeaker

## 7 Specifications

Field of application:	home speaker for listening distances 60 cm ... 120 cm
Maximum SPL of 100 Hz...8 kHz:	102 dB / 1m
Frequency response:	37 ... 21 kHz $\pm$ 3 dB / 60 cm
Impedance:	4 - 8 $\Omega$
Diaphragm stroke:	$\pm$ 4 mm
Maximum amplifier power:	75 - 80 W (25V <sub>eff</sub> max.)
Operating voltage:	230VAC 50/60 Hz
Power consumption:	< 0.5 W
Mains connection:	IEC appliance inlet C8
Loudspeaker systems:	One electrostatic broadband transducer (50 * 30 * 3.6 cm)
Dimensions (h * w * d cm):	115 * 44 * 14.5 (without stainless steel stabilizer)
Weight:	approx. 21 kg
Climatic conditions	
Working temperature range:	0 ... + 40°C
Storage temperature range:	-25 ... + 40°C
Relative humidity:	5 % ... 90 %
Housing design (Electronics):	MDF basalt gray lacquered with side decors in various wood types or RAL-colors
Grille cloth:	available in different colors standard: silver-gray

# Electrostatic Near-Field Loudspeaker

For more information and updates: [www.Sombetzki-Elektrostaten.de](http://www.Sombetzki-Elektrostaten.de)



## Sombetzki-Elektrostaten

Lautsprecherentwicklung für Studio- und Heimanwendungen

Am Plättchen 29  
D-35418 Buseck / Hessen

Tel. +49(0) 549 0 240

E-Mail: [info@sombetzki-elektrostaten.de](mailto:info@sombetzki-elektrostaten.de)

WEEE-Reg.-Nr. DE 93743649