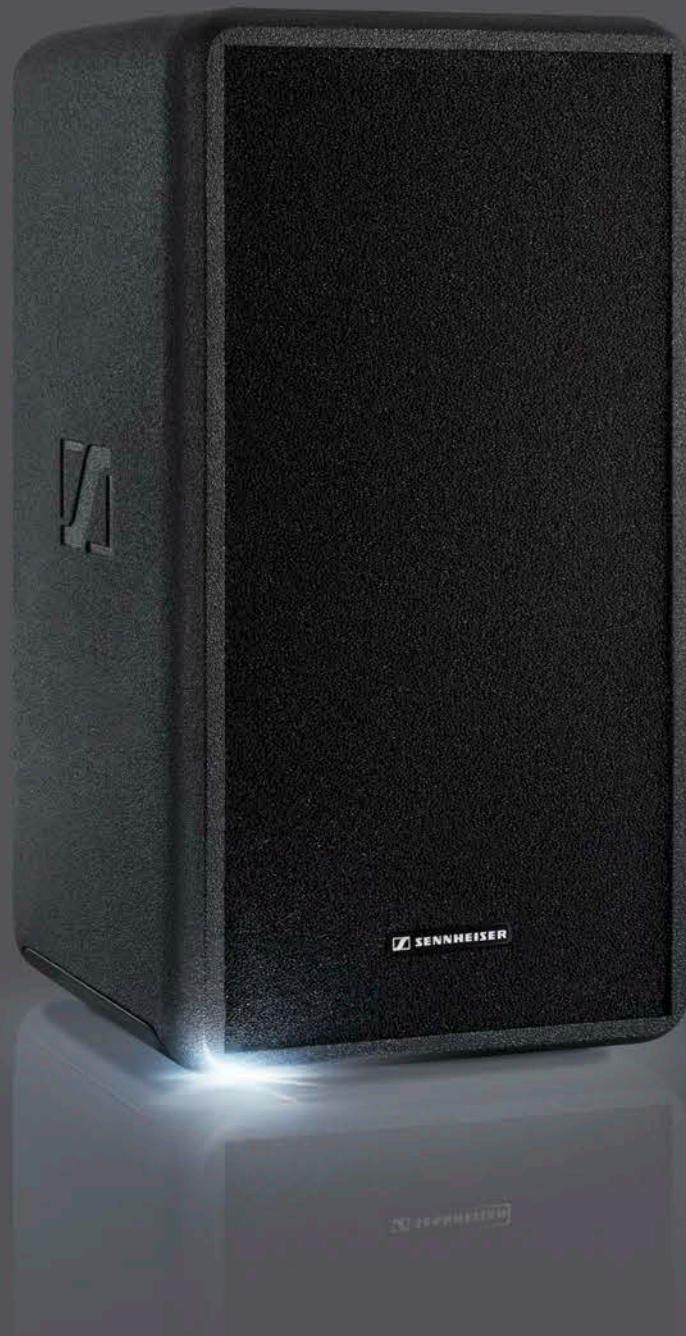


# LSP 500 PRO

## Wireless Integrated PA System



Instruction manual

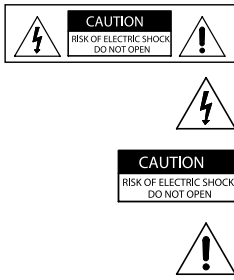
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## Important safety instructions

1. Read these safety instructions and the instruction manual of the product.
2. Keep these safety instructions and the instruction manual of the product. Always include all instructions when passing the product on to third parties.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Only clean the product when it is not connected to the power supply system. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where it exits from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, when the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Warning: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture and objects filled with liquids, such as vases, should not be placed on this apparatus.
16. To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC receptacle.
17. The mains plug of the power supply cord shall remain readily accessible.

### Hazard warnings on the rear of the product



The label shown on the left is attached to the rear of the product. The symbols on this label have the following meaning:

Presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute risk of electric shock.

Never open the product – there is a risk of electric shock. There are no user serviceable parts inside. Refer servicing to an authorized Sennheiser service partner.

Read and follow the safety and operating instructions contained in the instruction manual.

### Risk of fire due to overloading

Do not overload wall outlets and extension cables as this may result in fire and electric shock.

### Danger due to high volume levels

This product is used for commercial purposes. Commercial use is subject to the rules and regulations of the trade association responsible. Sennheiser, as the manufacturer, is therefore obliged to expressly point out possible health risks arising from use.

This product is capable of producing sound pressure levels exceeding 85 dB (A). 85 dB (A) is the sound pressure corresponding to the maximum permissible volume which is by law (in some countries) allowed to affect your hearing for the duration of a working day. It is used as a basis according to the specifications of industrial medicine. Higher volumes or longer durations can damage your hearing. At higher volumes, the duration must be shortened in order to prevent hearing damage.

The following are sure signs that you have been subjected to excessive noise for too long a time:

- You can hear ringing or whistling sounds in your ears.
- You have the impression (even for a short time only) that you can no longer hear high notes.

Inform all users of these risks and ask them to set the volume to a moderate level if necessary.

### Intended use

The product is designed for indoor and outdoor use. The product can be used for commercial purposes.

It is considered improper use when the product is used for any application not named in the corresponding instruction manual.

Sennheiser does not accept liability for damage arising from improper use or misuse of this product and its attachments/accessories.

Before putting the products into operation, please observe the respective country-specific regulations!

Sennheiser is not liable for damages to USB devices that are not consistent with the USB specifications.



This instruction manual is also available on the Internet at [www.sennheiser.com](http://www.sennheiser.com).

### Safety instructions for lithium-ion rechargeable batteries

- Do not dismantle, open or shred secondary cells or batteries.
- Keep batteries out of the reach of children. Battery usage by children should be supervised. Especially keep small batteries out of reach of small children.
- Do not expose cells or batteries to heat or fire. Avoid storage in direct sunlight.
- Do not short-circuit a cell or a battery. Do not store cells or batteries haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.
- Do not remove a cell or battery from its original packaging until required for use.
- Do not use any charger other than that specifically provided for use with the equipment.
- Do not use any cell or battery which is not designed for use with the equipment.
- Do not mix cells of different manufacture, capacity, size or type within a device.
- Always purchase the battery recommended by Sennheiser for the equipment.
- Keep cells and batteries clean and dry.
- Wipe the cell or battery terminals with a clean dry cloth if they become dirty.
- Do not leave a battery on prolonged charge when not in use.
- Retain the original product literature for future reference.
- Use the cell or battery only in the application for which it was intended.
- When possible, remove the battery from the equipment when not in use.
- Dispose of properly.
- When not using rechargeable batteries for extended periods of time, charge them regularly (about every three months).
- Immediately remove rechargeable batteries from obviously defective products.
- Do not continue to use defective rechargeable batteries.

## LSP 500 PRO

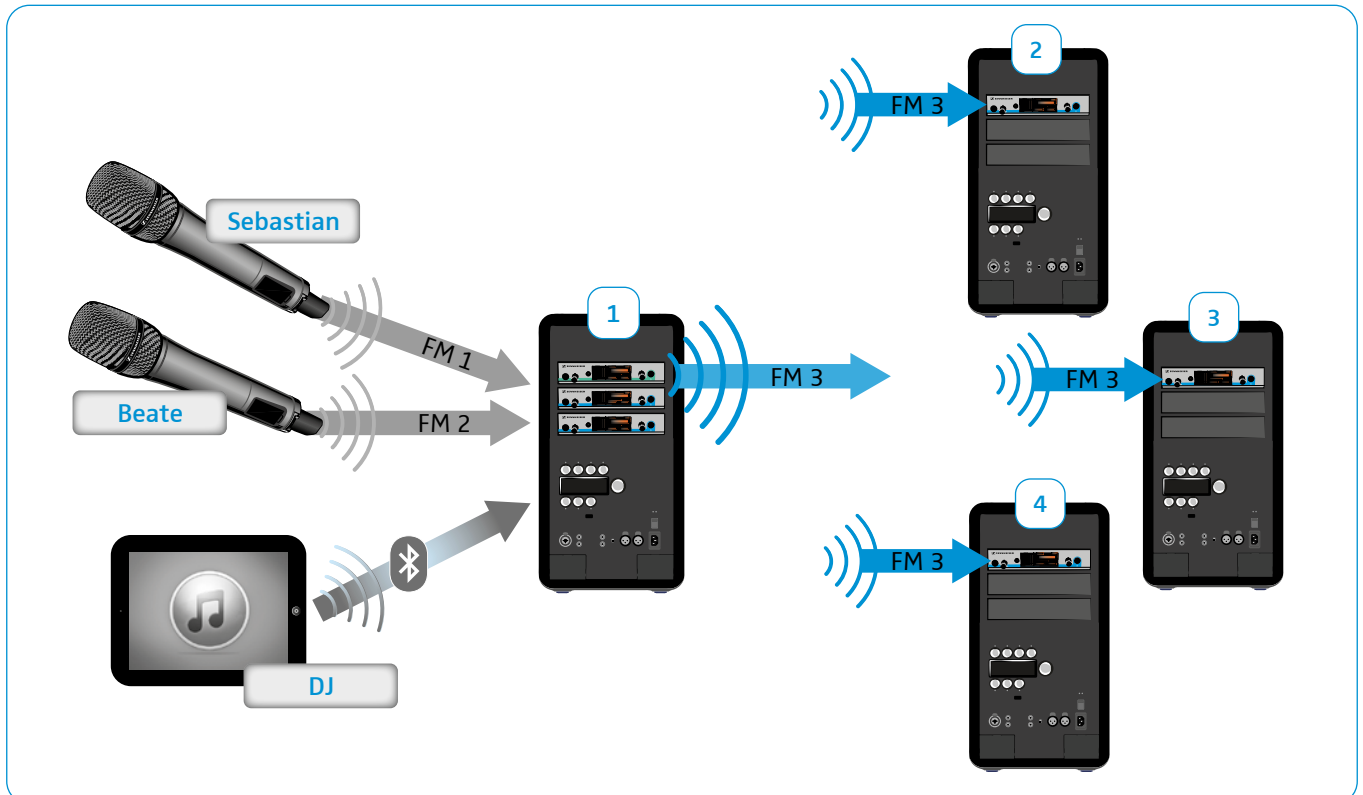
The Sennheiser Group, with its headquarters in Germany, is one of the world's leading manufacturers of microphones, headphones and wireless transmission systems. We are shaping today the audio world of tomorrow – that is the ambition that we and our company live by from day to day. This vision statement describes what we are hoping to achieve together. The foundation for this is our history, our culture of innovation and our passion for excellence.

With our audio experience of more than 60 years we have designed this LSP 500 PRO as a portable professional sound system for annual meetings, press conferences, bigger events, galas, etc. under the following aspects:

- Very short setup time and long operating time
- The first remote-controlled integrated sound system
- Wireless connectivity
- High speech intelligibility for professional applications
- Understated design suitable for all environments


We wish you every success with your events.

### Application example



## Package contents

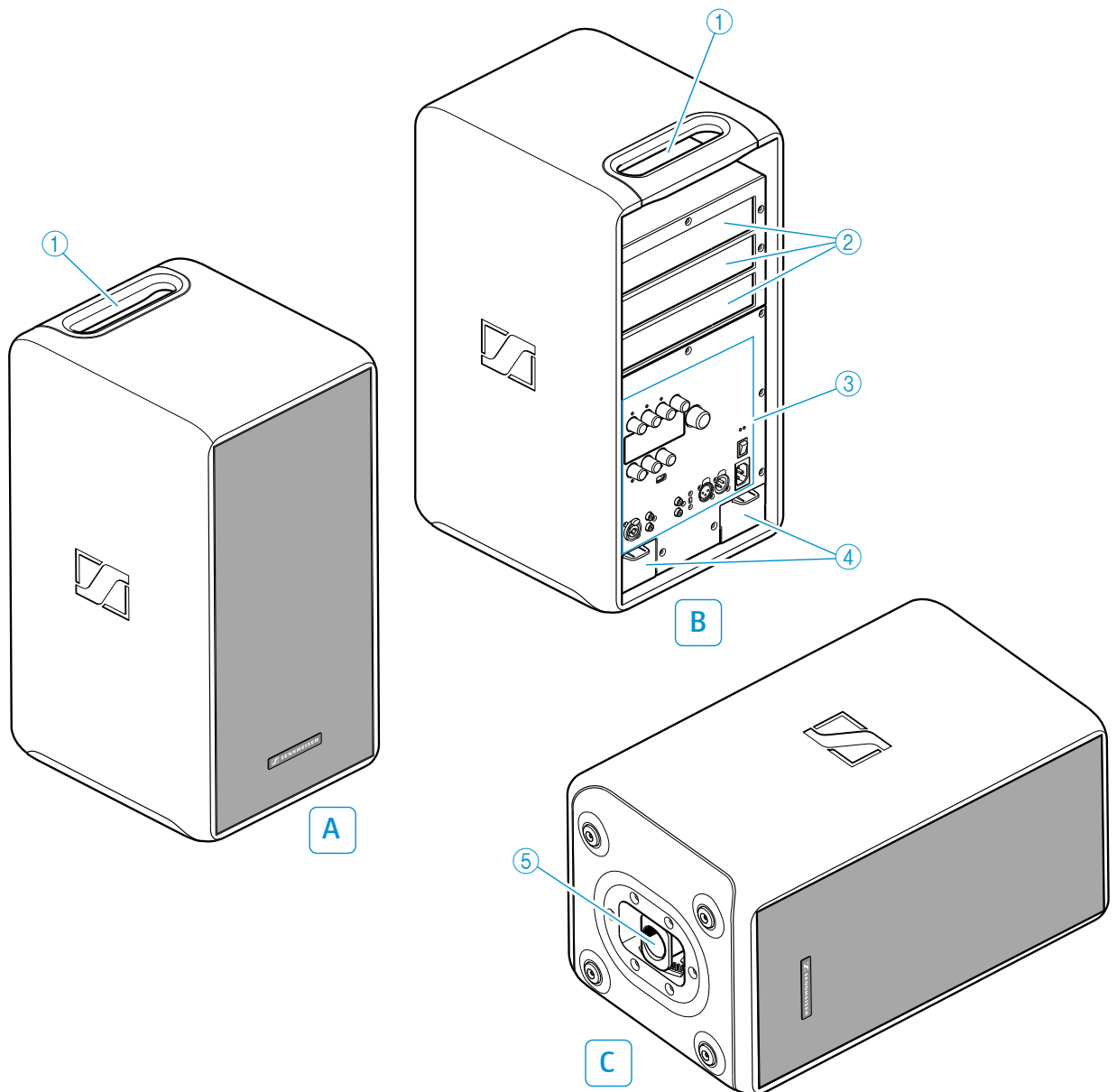
- 1 LSP 500 PRO wireless integrated PA system
- 1 mains cable
- 2 LBA 500 battery packs
- 6 rack mount “ears” for Sennheiser evolution wireless G3 devices
- 1 dust cover
- 1 quick guide
- 1 safety guide
- 1 CD-ROM

 A list of accessories can be found on the LSP 500 PRO product page at [www.sennheiser.com](http://www.sennheiser.com) and on page 63 in this instruction manual.

For information on suppliers, contact your local Sennheiser partner:

[www.sennheiser.com](http://www.sennheiser.com) > “Service & Support”

## Product overview



### A Front view

### B Rear view

- ① Carrying handle
- ② Expansion slots (from top to bottom: slot 1, slot 2, slot 3)
- ③ Operating elements (see page 9)
- ④ Battery compartments

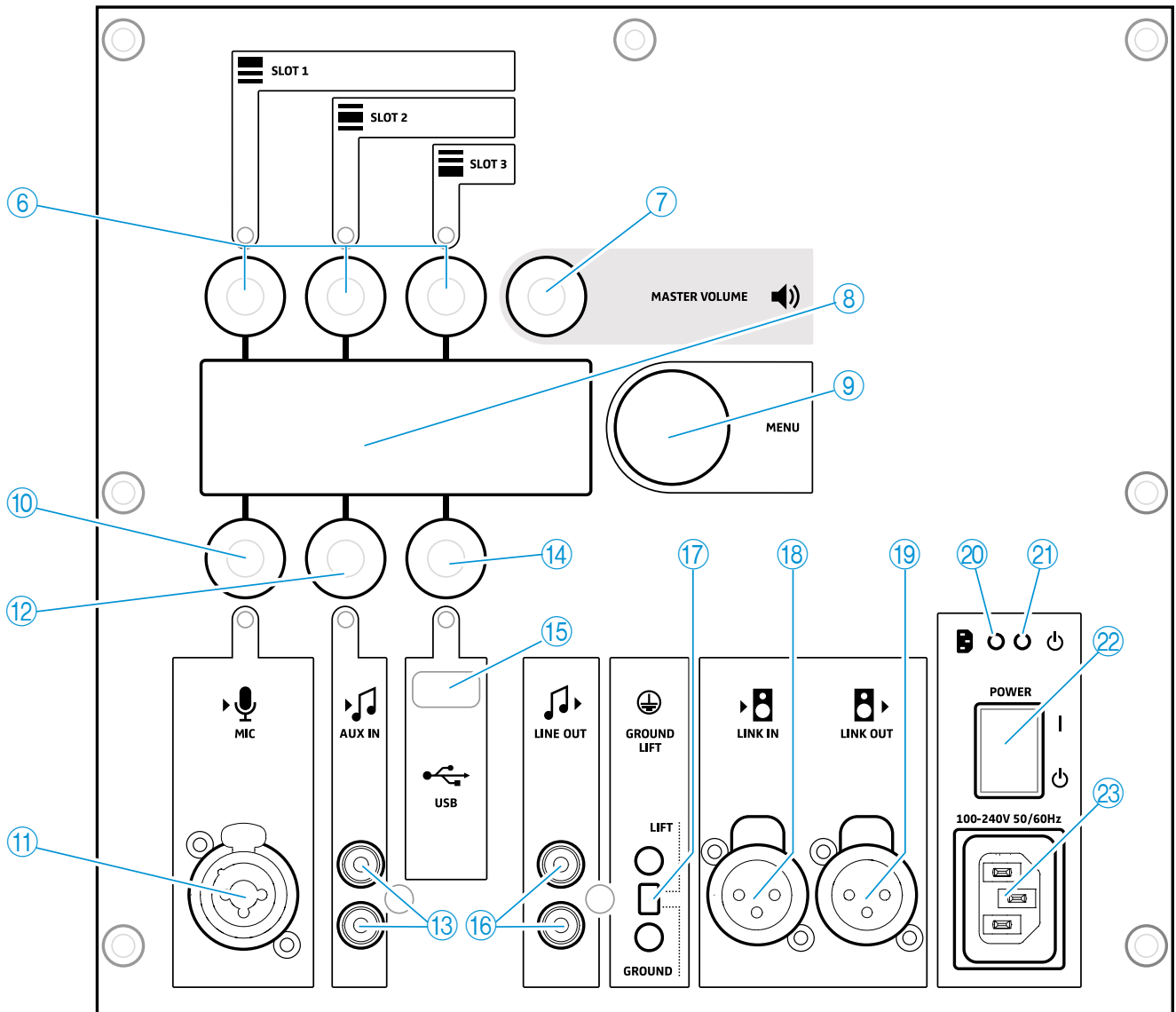
### C Bottom view

- ⑤ Pole mount



## Operating elements

**B**



- |   |                                   |
|---|-----------------------------------|
| ⑥ SLOT 1 / SLOT 2 / SLOT 3 input controls (jog dials) | ⑮ USB port                        |
| ⑦ MASTER VOLUME control (jog dial)                    | ⑯ LINE OUT output (RCA socket)    |
| ⑧ Display panel                                       | ⑰ GROUND LIFT switch              |
| ⑨ MENU control (jog dial)                             | ⑱ LINK IN input (XLR-3F socket)   |
| ⑩ MIC input control (jog dial)                        | ⑲ LINK OUT output (XLR-3M socket) |
| ⑪ MIC input (XLR-3F/¼" (6.3 mm) jack combo socket)    | ⑳ Power indicator                 |
| ⑫ AUX IN input control (jog dial)                     | ㉑ Operation indicator             |
| ⑬ AUX IN input (RCA socket)                           | ㉒ POWER on/off switch             |
| ⑭ USB input control (jog dial)                        | ㉓ Mains socket                    |

# Using the LSP 500 PRO

## Installing the LSP 500 PRO

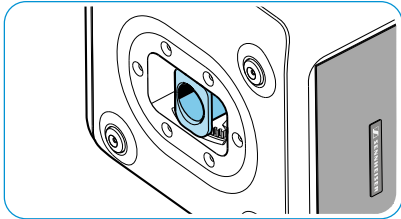
- ▶ Place the product on a stable and horizontal surface.
- ▶ Install the product so that it is protected from moisture (rain) and direct sunlight.



### CAUTION

Danger of injury and material damage due to incorrectly laid cables!

- ▶ Make sure that all cables to the product are laid so that no one can stumble over them and suffer injury or cause damage to the cables and the product.



### Pole mount with tilt function

The bottom of the LSP 500 PRO features a pole mount (5) with tilt function for mounting the LSP 500 PRO on a standard loudspeaker stand. For the specifications of the pole mount, refer to page 61.

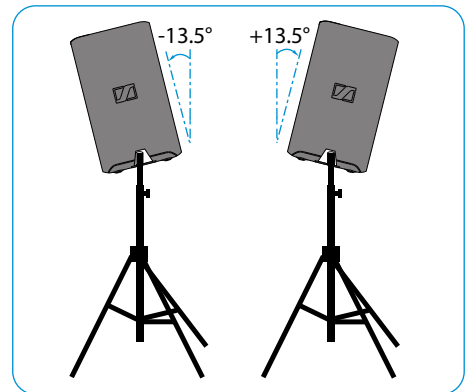
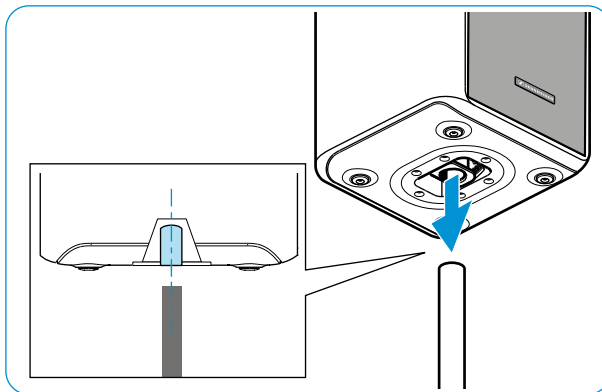
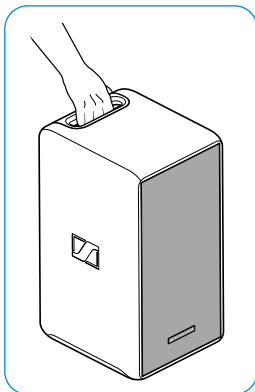


### CAUTION

Danger of injury and material damage due to tipping/dropping of the product!

- ▶ When mounting the LSP 500 PRO, secure it against tipping or dropping.
- ▶ Make sure that the LSP 500 PRO or the loudspeaker stand cannot tip over or drop down, even if the power or audio cables are pulled.

## Mounting the LSP 500 PRO on a loudspeaker stand



- ▶ Vertically align the pole mount (5) at the bottom of the LSP 500 PRO.
- ▶ Lift the LSP 500 PRO by the carrying handle (1) and place it on a loudspeaker stand.  
The pole mount is locked in place by engaging teeth.
- ▶ Slightly lift the LSP 500 PRO.  
The pole mount's teeth disengage and you can tilt the LSP 500 PRO up to +/- 13.5° in 4.5° steps.
- ▶ Lower the LSP 500 PRO in the desired tilt angle.  
The pole mount locks in place.

## Mains and battery operation

The LSP 500 PRO can be mains or battery powered. When battery powered, the LSP 500 PRO uses only one of the two battery packs, allowing a discharged battery pack to be replaced during operation. The LSP 500 PRO automatically switches to the second battery pack when the first one is depleted.

**i** When replacing a battery pack during operation, observe the information on page 13.



### CAUTION

**Product damage due to unsuitable mains cables or power outlets!**

An unsuitable power supply can damage the product.

- ▶ Only use the supplied mains cable for connecting the product to the mains power supply.
- ▶ Only use multi-outlet power strips or extension cables with protective ground contacts.

### Connecting the LSP 500 PRO to the mains power supply

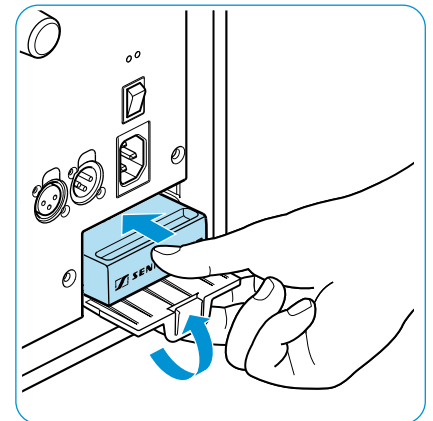
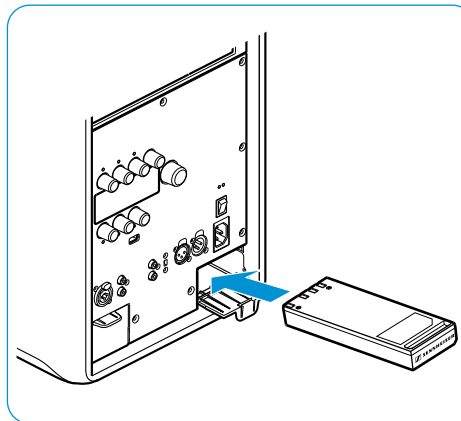
- ▶ Make sure that the **POWER** on/off switch ② is set to position “ $\text{\textcircled{I}}$ ”.
- ▶ Connect the mains cable to the mains socket ③ of the LSP 500 PRO.
- ▶ Connect the mains plug of the mains cable to a power outlet.

### Disconnecting the LSP 500 PRO from the mains power supply

- ▶ Set the **POWER** on/off switch ② to position “ $\text{\textcircled{I}}$ ”.
- ▶ Pull out the mains plug from the power outlet.

### Inserting the battery packs

To insert the battery packs:




- ▶ Insert the battery pack slightly diagonally into the battery compartment ④. When inserting, make sure that the charging contacts are located on the top surface of the battery pack (see fig.).
- ▶ Close the battery compartment by sliding the battery pack into the compartment as shown, while at the same time pushing the cover upwards.
- ▶ Repeat these two steps for the second battery pack.

### Charging/replacing the battery packs

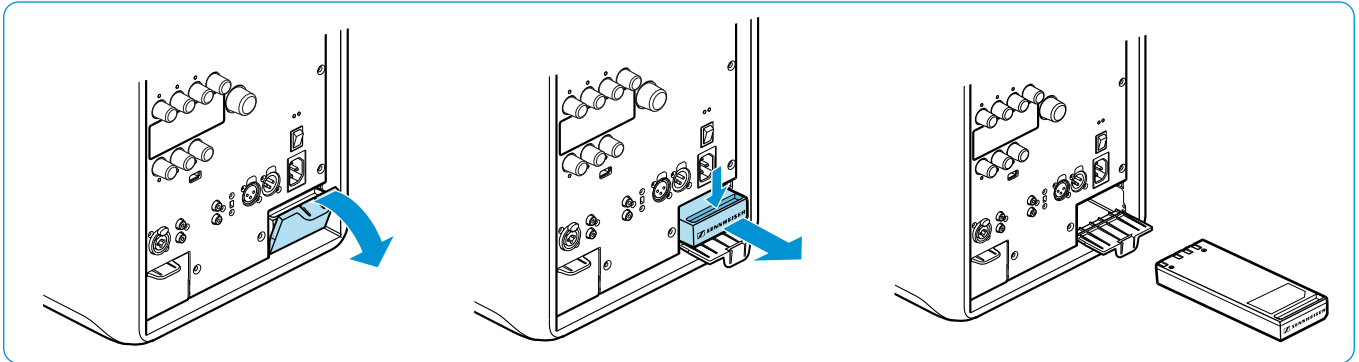
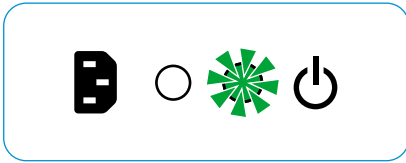
To charge the battery packs:

- ▶ Insert the battery packs (see page 11).
- ▶ Connect the LSP 500 PRO to the mains power supply.

The operation indicator  flashes, the charging process starts. When the battery packs are fully charged, the operation indicator lights up permanently.

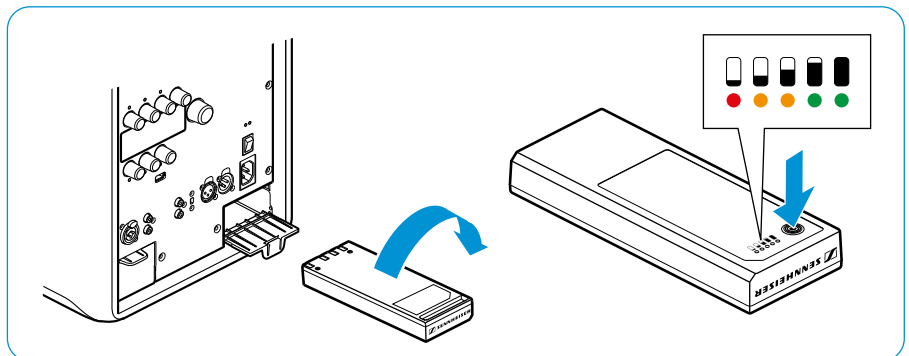
**i** A complete charging cycle takes about 2.5 hours per battery pack when the product is switched off. If you use the product during charging, the charging time will be extended.

To remove the battery pack from the battery compartment:



- ▶ Open the cover of the battery compartment (see fig.).
- ▶ Pull the battery pack out of the battery compartment using the recessed grip (see fig.).

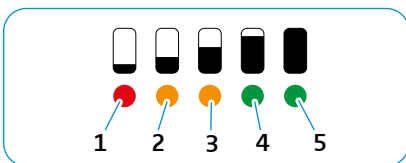
To check the battery charge status directly on the battery pack:



- ▶ Remove the battery pack.
- ▶ Press the button to the right of the charge status display.

The battery packs' current capacity is displayed for approx. 5 seconds.

Charge status display on the battery pack



LED	Color	Remaining capacity
1	red, flashing	approx. 0-10% (critical)
1	red, permanently lit	approx. 10-20%
2	orange	approx. 20-40%
3	orange	approx. 40-60%
4	green	approx. 60-80%
5	green	approx. 80-100%

**i** Upon delivery of the product, the capacity is approx. 30 - 50%.

## Important information on battery operation

### Replacing battery packs during operation

When two battery packs are installed in the LSP 500 PRO and you want to replace one of the two battery pack during operation, make sure to only remove the battery pack that is not in use.



Before removing a battery pack during operation:

- ▶ Check the LSP 500 PRO's display panel to see which battery pack is currently in use.  
For information on the battery charge status display, refer to page 16.
- ▶ Only remove the battery pack that is not in use.

### Deep discharge protection

The battery packs have a deep discharge protection. When unused for extended periods of time, the battery packs automatically switch off to prevent deep discharge.

To reactivate a battery pack:

- ▶ Insert the battery pack into the LSP 500 PRO and charge the battery pack (see page 11).

---

### USING THE BATTERY PACK AS SIGNAL BUFFER

At high volume levels, the LSP 500 PRO uses the battery pack to buffer signal peaks. Therefore, if you want to drive a mains powered LSP 500 PRO at high volume levels, at least one battery pack should be installed in the LSP 500 PRO.

---



## Switching the LSP 500 PRO on

- i** If the LSP 500 PRO is not connected to the mains power supply, it will be battery powered. For that to happen, the battery packs must be inserted and charged.

To switch the LSP 500 PRO on:

- ▶ Set the **POWER** on/off switch ② to position “I”.
- ▶ The LSP 500 PRO switches on. The operation indicator ② lights up green. After a few seconds, the following start icon appears on the display panel:



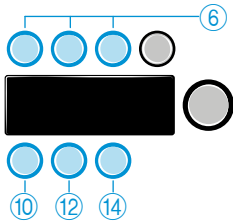
After a few more seconds, the home screen is displayed:



## Basic operating functions

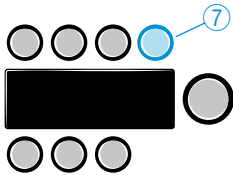
The operating functions of the LSP 500 PRO are similar to those of a mixing console. Using the LSP 500 PRO's six jog dials, you can adjust the input volume of the corresponding input. The **MASTER VOLUME** jog dial ⑦ allows you to adjust the overall volume of the LSP 500 PRO. The **MENU** jog dial ⑨ allows you to operate the menu in order to configure the LSP 500 PRO.

### Functions of the SLOT 1/2/3 ⑥, MIC ⑩, AUX IN ⑫, USB ⑭ jog dials



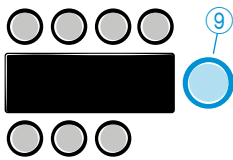
Action	Icon	Function
Turn a jog dial		<ul style="list-style-type: none"> <li>Adjusts the input volume of the corresponding input</li> </ul>
Press a jog dial		<ul style="list-style-type: none"> <li>Activates a function</li> </ul>

### Functions of the MASTER VOLUME jog dial ⑦



Action	Icon	Function
Turn the <b>MASTER VOLUME</b> jog dial		<ul style="list-style-type: none"> <li>Adjusts the overall volume level (possible from any menu level)</li> </ul>
Press the <b>MASTER VOLUME</b> jog dial		<ul style="list-style-type: none"> <li>Returns you directly to the home screen from any menu level</li> </ul>

### Functions of the MENU jog dial ⑨



Action	Icon	Function
Turn the <b>MENU</b> jog dial		<ul style="list-style-type: none"> <li>Browses through the menu items</li> <li>Adjusts a value</li> </ul>
Press the <b>MENU</b> jog dial		<ul style="list-style-type: none"> <li>Calls up a menu item</li> <li>Stores a setting</li> </ul>

## Basic indications and functions shown on the display panel

### Status area

The status area (highlighted in orange) on the right-hand side of the display panel indicates the battery charge status.



Icon	Explanation
	<ul style="list-style-type: none"> <li>The battery pack in use is depicted by the triangle. The triangle is animated and shows if the battery pack is being charged or in use (triangle pointing upwards → battery pack is in use; triangle pointing downwards → battery pack is being charged).</li> <li>The battery pack not in use is depicted by the bar.</li> </ul>
	<ul style="list-style-type: none"> <li>Both battery packs are inserted.</li> <li>The battery pack in the left battery compartment is in use and has a remaining capacity of 50%.</li> <li>The battery pack in the right battery compartment is fully charged and is currently not in use.</li> </ul>
	<ul style="list-style-type: none"> <li>The right battery compartment is empty.</li> <li>The battery pack in the left battery compartment is in use and has a remaining capacity of 50%.</li> </ul>
	<ul style="list-style-type: none"> <li>The LSP 500 PRO is mains operated. The mains plug icon is displayed.</li> <li>The battery pack in the right battery compartment is being charged.</li> <li>The battery pack in the left battery compartment is not in use. As soon as the battery pack in the right battery compartment is fully charged, the battery pack in the left battery compartment will be charged.</li> </ul>

### “Low battery” warning messages



When the battery charge status is less than 21%, the **LOW BATTERY** warning message flashes on the black area of the display panel.



When the battery charge status is less than 6%, the **BATTERY CRITICAL** warning message flashes on the display panel.



### Additional indications in the status area

The following additional icons can appear in the status area of the display panel:



Icon	Explanation
	Icon is displayed steadily: Bluetooth is activated and one device is paired. Icon is displayed flashing: Pairing mode is activated to allow Bluetooth devices to pair.
	Icon is displayed steadily: WLAN is activated and the LSP 500 PRO is connected to a network. Icon is displayed flashing: WLAN is activated and a network connection can be established.
	Icon is displayed flashing: The network connection has failed or the LSP 500 PRO is not connected to a network.
	Status of the USB player: <ul style="list-style-type: none"> <li>• Play</li> <li>• Pause</li> <li>• Record</li> </ul>

### Escape function



When you call up any menu item and **ESC** is displayed in the upper left corner of the display panel, you can exit the menu item without storing the settings made. When navigating the operating menu, the escape function also allows you to return to the previous menu level.

- ▶ Press the **SLOT 1** jog dial to call up the escape function and to exit a menu without storing the settings.
- ▶ Press the **SLOT 1** jog dial to return to the previous menu level.

### Adjusting the volume

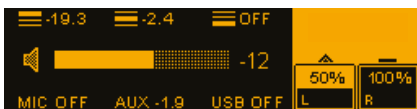


To adjust the input volume of the inputs:

- ▶ Turn one of the six input jog dials (**SLOT 1**, **SLOT 2**, **SLOT 3**, **MIC**, **AUX IN**, **USB**).

The icon for the corresponding input is shown on the left of the volume bar.

- i** The LEDs directly above the **SLOT 1**, **SLOT 2**, **SLOT 3** jog dials and directly below the **MIC**, **AUX IN**, **USB** jog dials indicate the level of the corresponding input. If an LED flickers green, a signal is present at the input. If an LED flickers or lights up red, the signal is overmodulated. The LED of the **USB** input cannot light up red.



To adjust the overall volume.

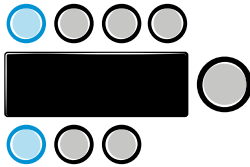
- ▶ Turn the **MASTER VOLUME** jog dial.

The icon for the overall volume is shown on the left of the volume bar.

- i** You can adjust the volume from -96 to +6 dB.



**STORED ✓**



**LOCKED 🔒**

### Confirmation of stored settings

Once you have adjusted a setting in the menu and stored it or when you have activated a function, the display panel displays **STORED**.

### Display time out

Once you have finished adjusting settings in the menu, all open menu items are automatically closed and the display panels returns to the home screen. The USB player and the test sound menu are not affected by this and remain open.

## Lock mode

You can activate a lock mode that locks the jog dials against accidental use. This prevents settings from being inadvertently changed during operation.

### Activating the lock mode

- ▶ Simultaneously press the **SLOT 1** and **MIC** jog dials for at least 2 seconds.

The lock mode is activated. The display panel temporarily displays **LOCKED**.

- i** If you turn or press a jog dial when the lock mode is activated, **LOCKED** is also briefly displayed. However, when the lock mode is activated, the **POWER** on/off switch can still be used.

### Deactivating the lock mode

- ▶ Simultaneously press the **SLOT 1** and **MIC** jog dials for at least 2 seconds.

The lock mode is deactivated and the home screen is displayed.

### Lock mode behavior when the LSP 500 PRO is operated using a tablet

If you operate the LSP 500 PRO using a tablet (see page 23), the lock mode is automatically activated. When you deactivate the lock mode directly on the LSP 500 PRO, and as long as you operate the LSP 500 PRO using the tablet, the lock mode is automatically reactivated after 1 minute of inactivity.

- i** If the WLAN connection breaks, the lock mode remains activated for 2minutes.




## Activating ground lift

If there is humming or buzzing noise coming from the input signal cables, you can disconnect pin 1 of the **LINK IN** XLR input from the ground:

- ▶ Set the **GROUND LIFT** switch to position **LIFT**.








## Connection possibilities

### Expansion slots

Label	Icon	Function
SLOT 1	 <b>SLOT 1</b>	Expansion slot for installing a Sennheiser ew G3 device
SLOT 2	 <b>SLOT 2</b>	Expansion slot for installing a Sennheiser ew G3 device
SLOT 3	 <b>SLOT 3</b>	Expansion slot for installing a Sennheiser ew G3 device

**i** If you want to install a transmitter into the LSP 500 PRO, it is recommended to install it in **SLOT 1** for mounting reasons.

### Additional inputs and outputs

Label	Icon	Function
BLUETOOTH		Bluetooth interface for wireless connection to audio sources (e.g. iPod, smartphone)
MIC	 <b>MIC</b>	XLR-3F/¼" (6.3 mm) jack combo socket for connecting wired audio sources (e.g. microphone, instrument)  <b>i</b> The <b>MIC</b> input provides a switchable 48V phantom power. The phantom power can be activated via the menu.
AUX IN	 <b>AUX IN</b>	RCA input for connecting wired audio sources (e.g. CD player, laptop)
USB	 <b>USB</b>	USB port for playing audio files from USB storage devices (e.g. USB flash drive, external hard disk)  <b>i</b> For more information on the supported USB storage devices, refer to page 35.
LINE OUT	 <b>LINE OUT</b>	RCA output for outputting the audio signal to an external device (e.g. recording device)
LINK OUT	 <b>LINK OUT</b>	XLR-3M output for outputting the audio signal to additional devices (e.g. LSP 500 PRO, active subwoofer)
LINK IN	 <b>LINK IN</b>	XLR-3F input for connection to the "Link" output of an additional LSP 500 PRO

## Installing devices in the expansion slots

The 3 expansion slots of the LSP 500 PRO allow you to install devices of the Sennheiser ew G3 series.

Using the media control protocol of the ew G3 series

**i** If you operate the LSP 500 PRO from your tablet using the required app (see page 23), the integrated media control protocol of the installed ew G3 devices sends device status information to the app. For this to happen, a device needs to be detected only once after its installation. For more information, refer to page 53.



### CAUTION

**Danger of electric shock!**

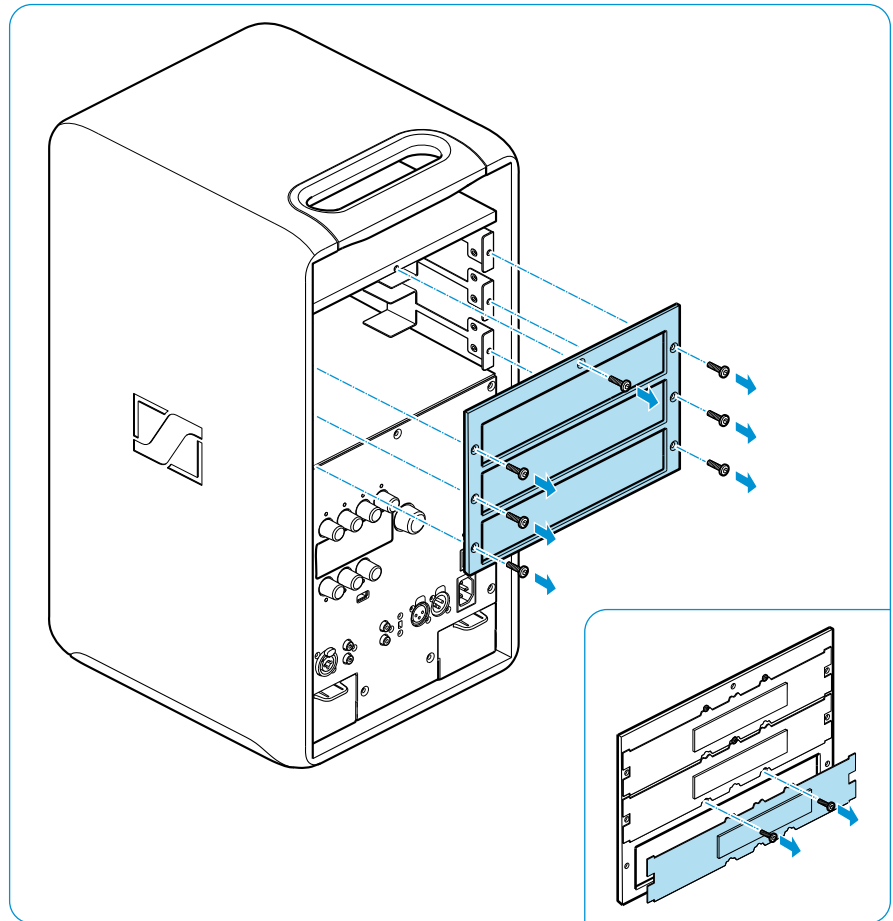
- ▶ Before installing devices in the expansion slots, switch the LSP 500 PRO off and disconnect it from the mains power supply.

### Required accessories and tools

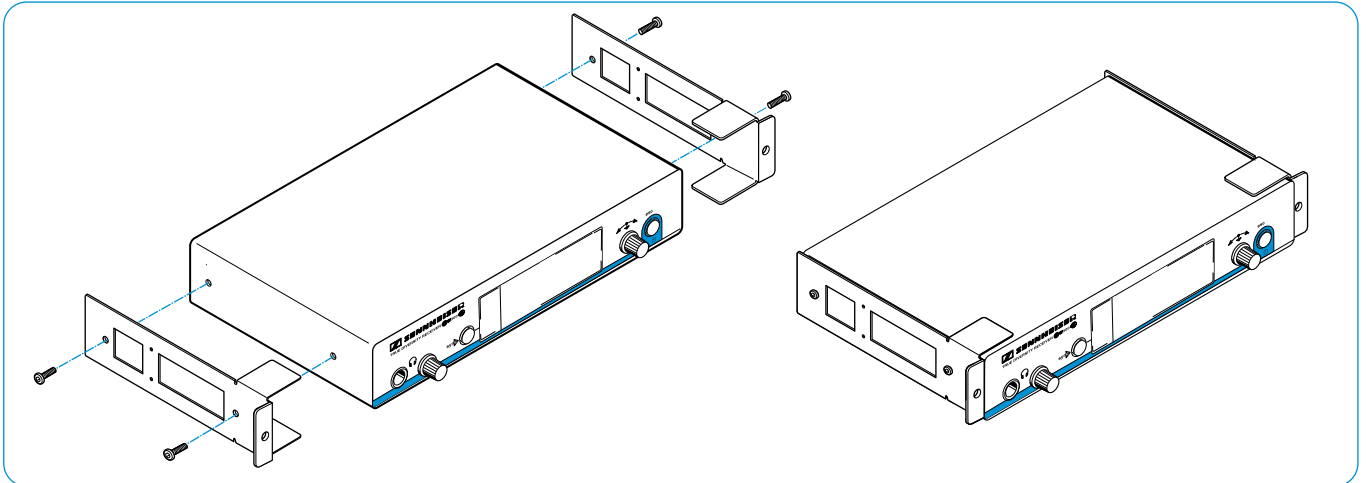
- 2 rack mount “ears” per device (supplied with the LSP 500 PRO)
- 2.5 mm Allen key
- Recessed head screwdriver (PH 2)

### Opening the expansion slot

- ▶ Unscrew and remove the 7 Allen screws of the cover plate frame.
- ▶ Remove the cover plate frame.
- ▶ Unscrew and remove the screws at the rear of the cover plate frame.
- ▶ Remove the cover plate of the slot you want to use.

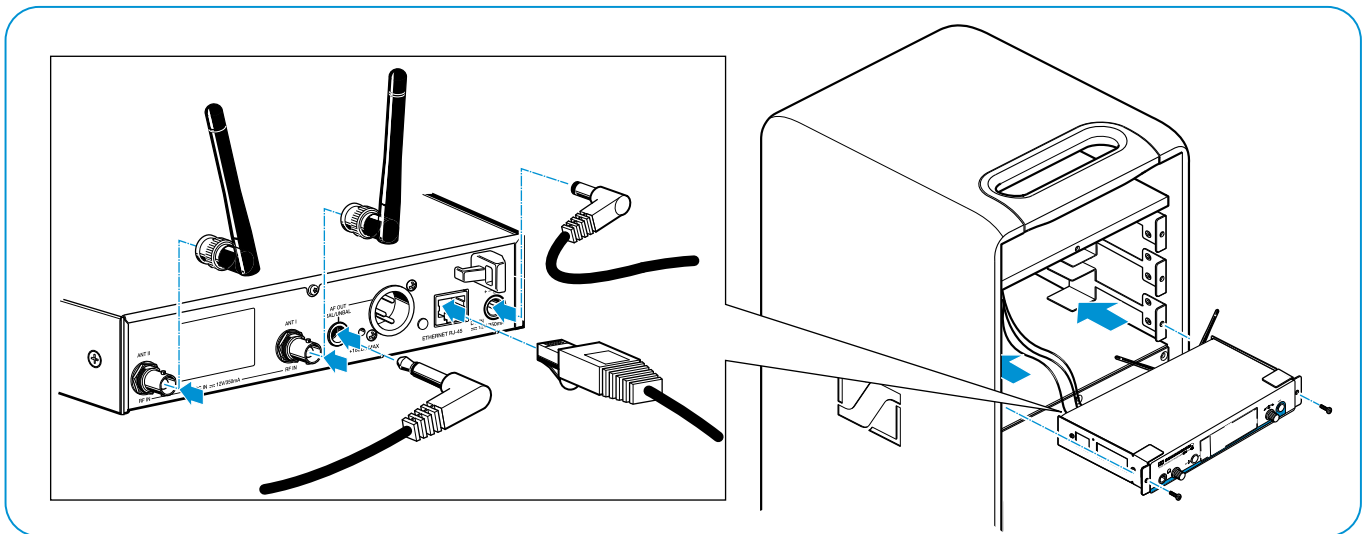


### Mounting the rack mount “ears”



- ▶ Unscrew and remove the 2 recessed head screws on each side of the receiver/transmitter.
- ▶ Secure the rack mount “ears” (supplied with the LSP 500 PRO) to the sides of the receiver / transmitter using the previously removed 4 recessed head screws. You require 2 rack mount “ears” per receiver / transmitter.
- ▶ Tighten the screws on the rack mount “ears” using a recessed head screwdriver (PH 2).

## Connecting and installing a receiver / transmitter



- ▶ If necessary, remove the rubber feet from the receiver / transmitter.
- ▶ Connect the cable of the corresponding expansion slot to the receiver / transmitter.

The cables of the expansion slots are labeled to ensure proper connection and installation. The network plugs (RJ 45) are universal and are not labeled.

**i** If you install a stereo transmitter (e.g. Sennheiser SR 300 IEM G3), you have to set the transmitter to mono operation. For further information and for information on the connection sockets of the stereo transmitter, refer to the corresponding instruction manual.

- ▶ Connect the rod antennas of the receiver / transmitter and align them in a V-shape.
- ▶ Make sure that the antennas are pointing away from each other and do not cross to ensure optimum reception and full diversity performance.
- ▶ Carefully slide the receiver / transmitter into the expansion slot.
- ▶ Take care that no cables are pinched when inserting the receiver / transmitter.
- ▶ Screw the rack mount “ears” to the front of the LSP 500 PRO.
- ▶ Replace the cover plate frame and tighten the 7 Allen screws.

**i** Leave unused cables in their plastic wraps and, if necessary, fix them to the expansion slot. Due to the vibrations of the LSP 500 PRO, loose cables can cause unwanted noise.

## Operating the LSP 500 PRO via a tablet



The optionally available “LSP 500 PRO” app allows you to operate the LSP 500 PRO from your tablet. The app turns your tablet into a mobile mixing console and allows you to adjust the settings of an individual LSP 500 PRO and to also adjust common settings for several LSP 500 PRO at the same time. The app supports the operation of up to 20 LSP 500 PRO simultaneously.

**i** Information on downloading and installing the app as well as information on supported mobile devices can be found on the LSP 500 PRO product page at [www.sennheiser.com](http://www.sennheiser.com).



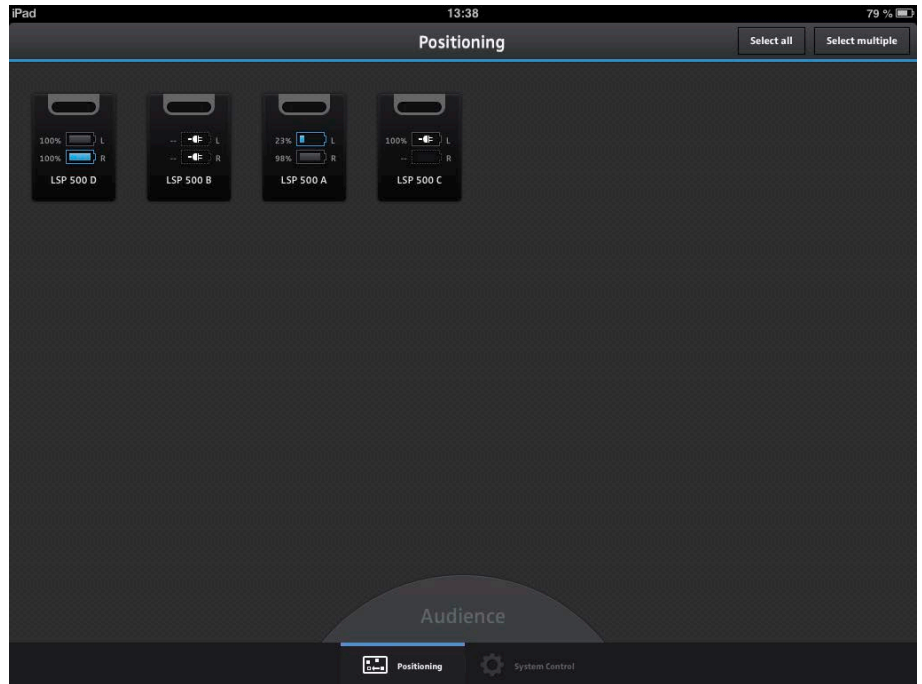
**i** In order to be able to operate the LSP 500 PRO from your tablet using the app, you first have to connect the LSP 500 PRO to a wireless network (WLAN). For information on how to connect the LSP 500 PRO to a wireless network, refer to page 42.

## Information on using the app

The app is available in the following languages: English, German, French, Italian, Spanish, Dutch and Russian. The app opens automatically in the language you have set up for your tablet. If the operating system on your tablet uses a language that is not supported by the app, the app opens in English.

### “Positioning” screen

After opening the app, it will show all the LSP 500 PRO available in the network.



On this screen, you can perform the following actions:

- ▶ Position the boxes as desired by dragging them to any location on the screen.
- ▶ Drag the “Audience” to the desired position.
- ▶ Tap on a box to edit the settings of this box.
- ▶ Tap on the “Select multiple” option to select several boxes at the same time and to edit their common settings.
- ▶ Tap on the “Select all” option to select all boxes and to edit their common settings.
- ▶ Tap longer on a box to see which LSP 500 PRO corresponds to which box in the app.

A yellow frame flashes around the box and the display panel of the corresponding LSP 500 PRO flashes also.

- i** If the LSP 500 PRO are operated using the tablet, their lock mode is automatically activated. When turning or pressing a jog dial of an LSP 500 PRO, **LOCKED** appears on the display panel of the LSP 500 PRO. At the same time, the corresponding box flashes briefly on the “Positioning” screen in the app, allowing you also to see which box in the app corresponds to which LSP 500 PRO.



### “Edit box” screen

If you tap on an individual box on the “Positioning” screen, you can configure the selected LSP 500 PRO. The following screen appears:



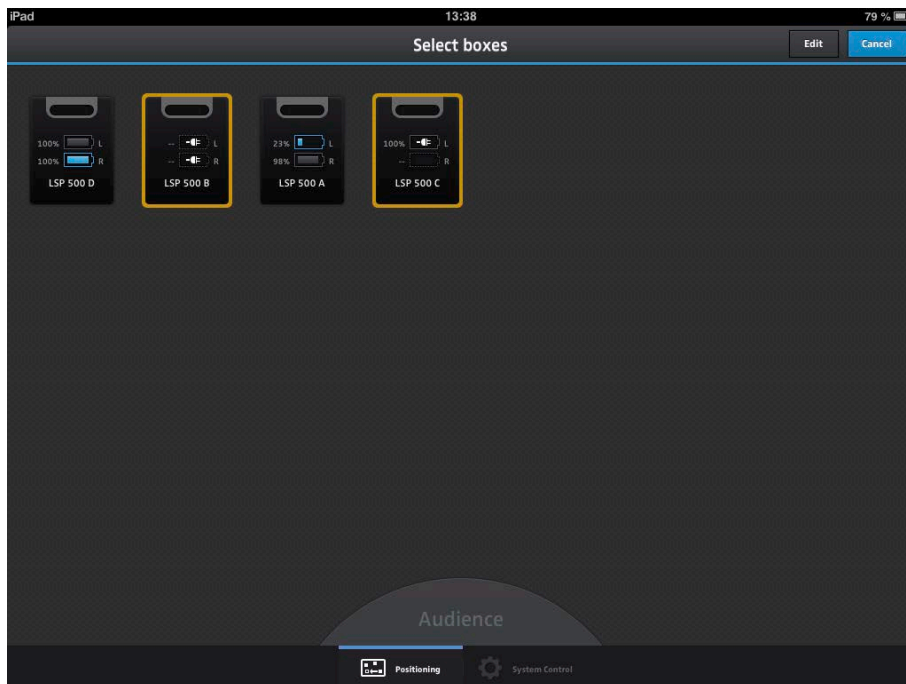
### “Mixing Panel” screen

The “Mixing Panel” screen shows a summary of all activated inputs of all boxes. You can activate a total of 7 inputs. The “Mixing Panel” screen allows you to configure the activated inputs.



### Selecting several boxes

On the “Positioning” screen, you can either tap on “Select all” to simultaneously select all boxes or you can tap on “Select multiple” to simultaneously select certain boxes.



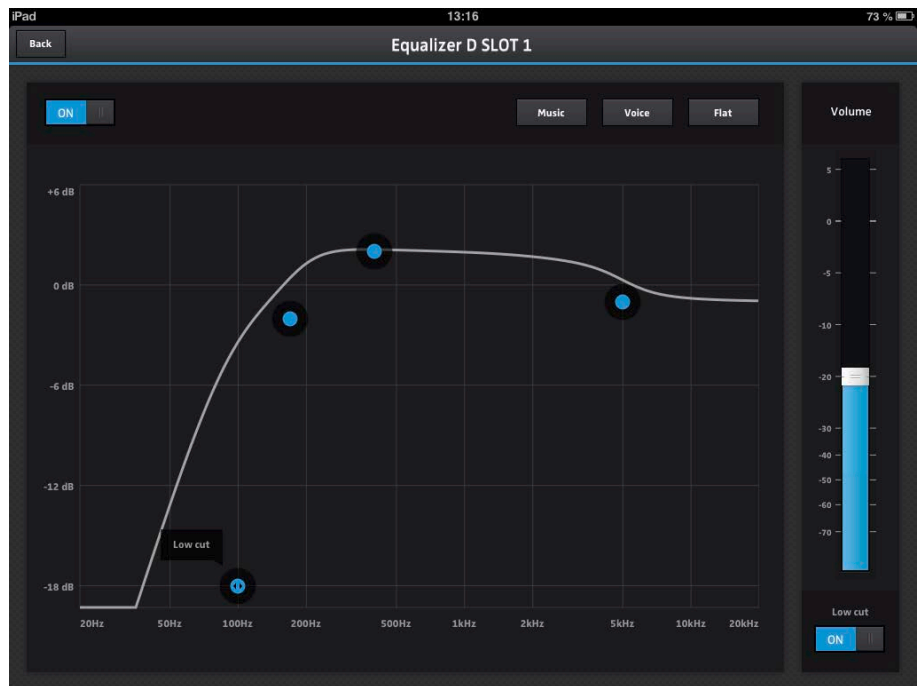
### Adjusting common settings for several boxes

If you have selected several boxes on the previous screen, you can adjust common settings for the selected boxes by tapping on “Edit” in the upper right corner of the screen. The following screen appears:



## Equalizer

You can operate the equalizer of the LSP 500 PRO via the app.



## Compressor

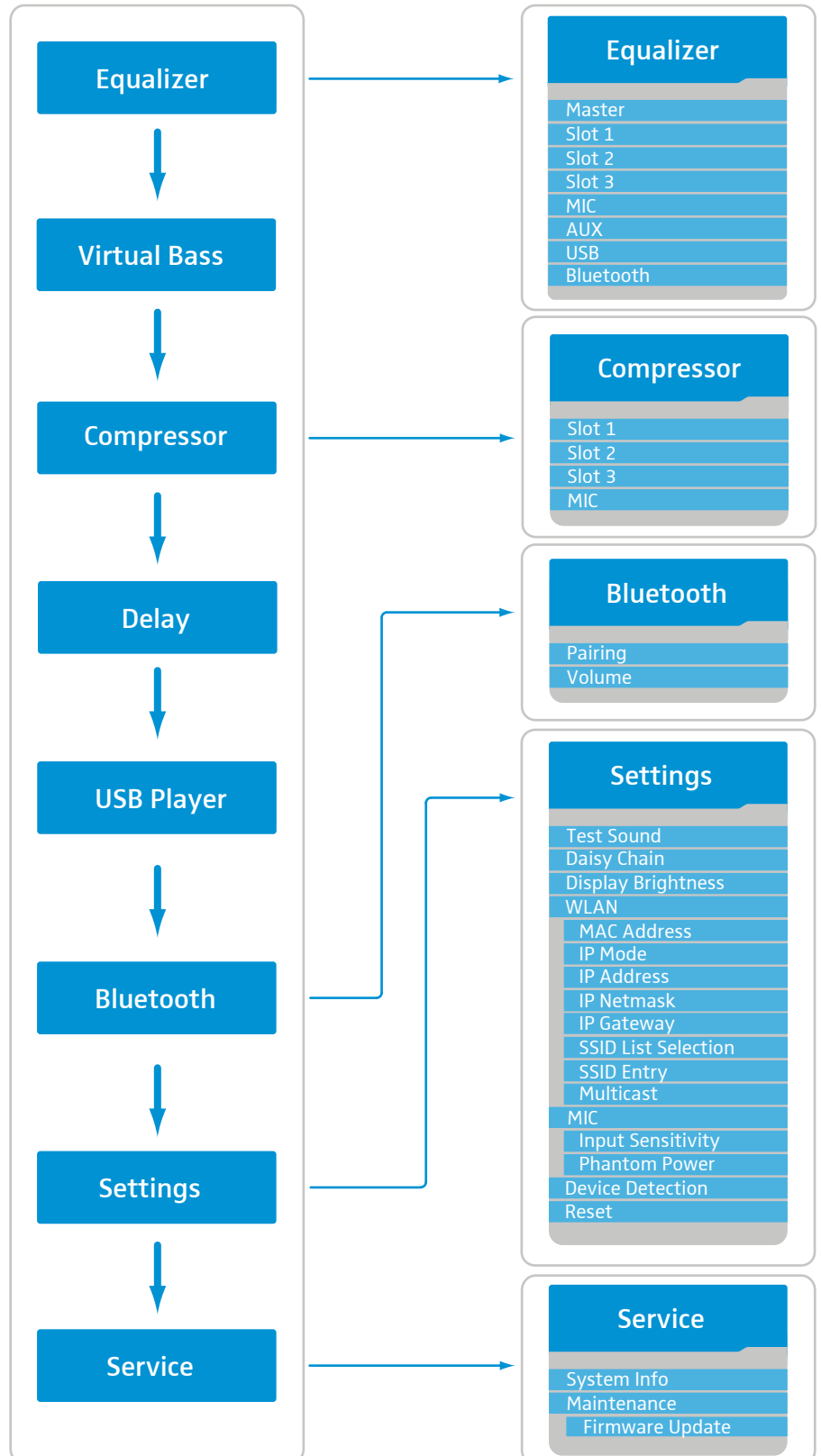
You can operate the compressor of the LSP 500 PRO via the app.



# The operating menu

## Menu structure

This overview shows the structure and functions of the LSP 500 PRO's menu which can be operated using the **MENU** jog dial.



To call up the operating menu:



- ▶ When the home screen is displayed, turn the **MENU** jog dial to the left or right to browse up or down through the operating menu.

The menu items are displayed as follows:



The opened menu level or menu item is shown at the bottom left of the display panel. The **ESC** function allows you to return to the previous menu level.

Menu



Equalizer

## Equalizer

You can either open and configure a master EQ for the overall signal of the LSP 500 PRO or you can open and configure an equalizer with 3 presets for each individual input (**SLOT 1**, **SLOT 2**, **SLOT 3**, **MIC**, **AUX IN**, **USB**, **BLUETOOTH**).

To open the equalizer:



- ▶ At the first menu level, turn the **MENU** jog dial until the **EQUALIZER** menu item is displayed.



- ▶ Press the **MENU** jog dial to open the **EQUALIZER** menu item.



- ▶ Turn the **MENU** jog dial to select the **MASTER** menu item for the master EQ or to select one of the **SLOT 1**, **SLOT 2**, **SLOT 3**, **MIC**, **AUX IN**, **USB** or **BLUETOOTH** menu items for the corresponding input EQ.



- ▶ Press the **MENU** jog dial to open the selected equalizer.

Master

## Master EQ

The master EQ allows you to configure the overall signal of the LSP 500 PRO. The master EQ is a semiparametric 3-band equalizer.

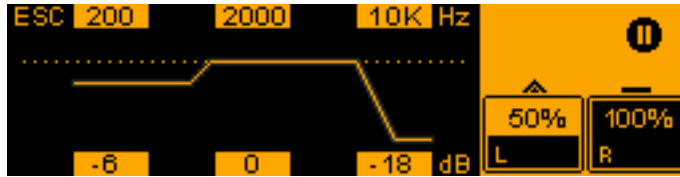


- ▶ Turn the **MENU** jog dial to switch the master EQ on or off.

Display example when EQ is switched off



Display example when EQ is switched on



- ▶ Configure the master EQ using the jog dials that are assigned the following functions:

Jog dial	Action	Function
SLOT 1		Sets the cut-off frequency of the low frequency band
SLOT 2		Sets the cut-off frequency of the mid frequency band
SLOT 3		Sets the cut-off frequency of the high frequency band
MIC		Sets the level of the low frequency band
AUX IN		Sets the level of the mid frequency band
USB		Sets the level of the high frequency band



- ▶ Press the **MENU** jog dial to store your settings.



The app (see page 23) allows you to make more detailed settings (e.g. notch filter) for the master EQ. The settings made in the app are also displayed on the display panel of the LSP 500 PRO. When you return to making settings directly on the LSP 500 PRO, the display panel shows again the simplified representation and all settings made in the app are overwritten.

## EQ presets for the inputs

### EQ On/Off

#### Switching an input EQ on or off

To switch an input equalizer on or off:

- ▶ Select the desired input in the **EQUALIZER** menu and turn the **MENU** jog dial until the **EQ ON/OFF** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **EQ ON/OFF** menu item.



- ▶ Turn the **MENU** jog dial to choose between **ON** and **OFF**.
- ▶ Press the **MENU** jog dial to activate your selection and to switch the input EQ on or off.

**i** The following menu items are only available when the input EQ is switched on.

### EQ Presets

#### Selecting an EQ preset for an input

To select an EQ preset for an input:

- ▶ Select the desired input in the **EQUALIZER** menu and turn the **MENU** jog dial until the **EQ PRESETS** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **EQ PRESETS** menu item.

3 presets are available for each input.



- ▶ Turn the **MENU** jog dial to choose between **VOICE**, **MUSIC** and **FLAT**.

EQ preset	Explanation
<b>VOICE</b>	Optimized for speech
<b>MUSIC</b>	Optimized for music
<b>FLAT</b>	No influence

- ▶ Press the **MENU** jog dial to activate the selected preset.

**i** If none of the 3 presets is highlighted in orange on the display panel, the equalizer settings have been made in the “LSP 500 PRO” app (see page 23). If you select a preset, the settings made in the app are overwritten.

Low Cut

### Activating the low-cut filter

To suppress unwanted noise such as, e.g., impact noise, you can activate a low-cut filter for the inputs **SLOT 1**, **SLOT 2**, **SLOT 3** and **MIC**.

To switch the low-cut for an input on or off:



▶ Select the desired input in the **EQUALIZER** menu and turn the **MENU** jog dial until the **LOW CUT** menu item is displayed.

▶ Press the **MENU** jog dial to open the **LOW CUT** menu item.



▶ Turn the **MENU** jog dial to switch the low-cut filter on or off.

▶ Press the **MENU** jog dial to activate your selection.

Menu

Virtual Bass

### Virtual Bass

You can activate a virtual bass function to enhance the perceived bass reproduction for the inputs **AUX IN**, **USB** and **BLUETOOTH**. The virtual bass function uses the **SRS WOW HD™** technology.

To switch the virtual bass function on or off:



▶ At the first menu level, turn the **MENU** jog dial until the **VIRTUAL BASS** menu item is displayed.

▶ Press the **MENU** jog dial to open the **VIRTUAL BASS** menu item.



▶ Turn the **MENU** jog dial to choose between **ON** and **OFF**.

▶ Press the **MENU** jog dial to activate your selection and to switch the virtual bass function on or off.

Menu

Compressor

### Compressor

You can activate and configure a compressor for the inputs **SLOT 1**, **SLOT 2**, **SLOT 3** and **MIC**.

To open the compressor:



▶ At the first menu level, turn the **MENU** jog dial until the **COMPRESSOR** menu item is displayed.

▶ Press the **MENU** jog dial to open the **COMPRESSOR** menu item.

▶ Turn the **MENU** jog dial to select the desired input.

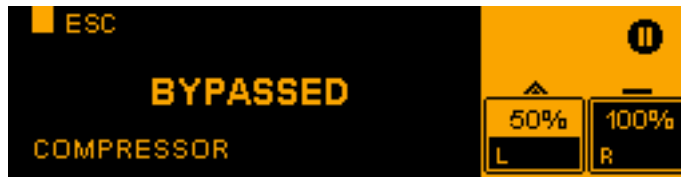






- ▶ Press the **MENU** jog dial to open the compressor for the selected input.
- ▶ Turn the **MENU** jog dial to switch the compressor for the selected input on or off.

Display example when compressor is switched off



Display example when compressor is switched on



**i** The dotted area in the **TH** slider displays the level of the audio signal.

- ▶ Configure the compressor using the jog dials that are assigned the following functions:

Jog dial	Action	Function
SLOT 3		Adjusts the compressor threshold ( <b>TH</b> )
USB		Adjusts the compressor ratio ( <b>RATIO</b> )



- ▶ Press the **MENU** jog dial to store your settings.

Setting recommendations for the compressor

Use as ...	To ...	Ratio	Gain reduction
... leveler	... compensate for volume differences, e.g. due to different talking distances to the mic or different speakers	1.2 to 2	The gain reduction should be between 0 - 6 dB.
... peak limiter	... compensate for sudden signal peaks, e.g. due to throat-clearing or touching the sound inlet basket	4 to 10	Normally, there should be no gain reduction.

- ▶ First, set the threshold to +6 dB.
- ▶ Make the desired ratio settings according to the table.
- ▶ During operation, slowly lower the threshold until the desired acoustic effect is achieved.



A gain reduction of more than 10 dB can cause an increased susceptibility to feedback. This is why the gain reduction should be continuously monitored, and, if necessary, adjusted during operation.

Menu

Delay

## Delay

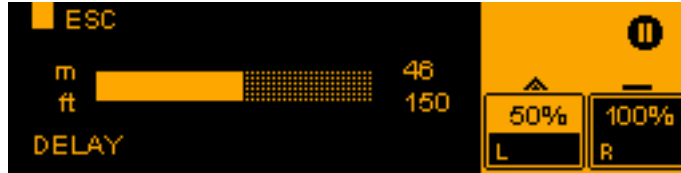
To open the delay function:



▶ At the first menu level, turn the **MENU** jog dial until the **DELAY** menu item is displayed.



▶ Press the **MENU** jog dial to open the **DELAY** menu item.



▶ Turn the **MENU** jog dial to adjust a delay value.



The delay can be adjusted in the range from 0 to 92 m (0 to 300 ft), in steps of 0.2 m (0.5 ft).



▶ Press the **MENU** jog dial to store the adjusted value.

Menu



USB Player

## USB player

The USB player allows you to playback audio files or to record the audio signal of the LSP 500 PRO.

All USB storage devices that are to be connected to the LSP 500 PRO have to comply with the following requirements.

• File system	FAT 32
• Maximum file size	4 GB
• Maximum memory	8 TB
• Maximum current consumption of external hard disks	500 mA
• Maximum number of audio files to be read in	2000

**i** Due to the large number of different USB flash drives on the market, incompatibilities may still occur, even if the above requirements are complied with.

To open the USB player:



▶ At the first menu level, turn the **MENU** jog dial until the **USB PLAYER** menu item is displayed.



▶ Press the **MENU** jog dial to open the USB player.

The USB player has a playback and a recording mode. When opening the USB player, the playback mode is displayed.

**i** The **USB PLAYER** menu item is displayed only when a compatible USB storage device is connected to the LSP 500 PRO. If the menu item is still not displayed, it might be that the connected USB storage device is not compatible with the LSP 500 PRO.

### Playback mode

Display example when USB player is in playback mode



Display example when USB player is in playback mode and during playback



Using the USB player in playback mode

Jog dial	Action	Icon	Function
MENU			Returns to the home screen
SLOT 1			Selects a playback option: Random
			Sequence
			Single track
SLOT 2			Repeat function activated
			Repeat function deactivated
SLOT 3			Changes to recording mode
MIC			Short press: jumps to the previous track
			Long press: rewinds the track
AUX IN			Browses through the playlist without stopping the current track
AUX IN			Play
			Pause
USB			Short press: jumps to the next track
			Long press: fast-forwards the track

### Recording mode

Display example when USB player is in recording mode



Display example when USB player is in recording mode and during recording



**i** The time display on the display panel indicates the remaining recording time left on the storage device.

Using the USB player in recording mode

Jog dial	Action	Icon	Function
MENU			Returns to the home screen
SLOT 3			Stops the recording and changes to playback mode
AUX IN			Record
			Pause

### Notes on handling recording files

You can either create a new file for each recording or you can append additional recordings to the same file. Recordings are saved as WAV files (stereo / 16 bit / 44.1 kHz).

To create a new recording file for each recording:

- ▶ Change from playback mode to recording mode.
- ▶ Press the **AUX IN** jog dial to start the recording.
- ▶ Press the **SLOT 3** jog dial to end the recording and to change to playback mode.
- ▶ Change from playback mode to recording mode.
- ▶ Press the **AUX IN** jog dial to start the recording.

A new recording file is created. The number at the end of the file name is incremented by one for each new recording file.

To make multiple recordings in the same file:

- ▶ Change from playback mode to recording mode.
- ▶ Press the **AUX IN** jog dial to start the recording.
- ▶ Press the **AUX IN** jog dial to stop the recording.
- ▶ Press the **AUX IN** jog dial to resume recording to the same file.

As long as you do not stop recording mode by pressing the **SLOT 3** jog dial, you continue recording to the same file after recording has been stopped.

Menu

Bluetooth

## Bluetooth

Via the Bluetooth menu, you can pair a mobile device (e.g. smartphone, tablet) with the LSP 500 PRO in order to be able to play audio files. The LSP 500 PRO supports the A2DP protocol (SBC and aptX®).

To open the Bluetooth menu:



- ▶ At the first menu level, turn the **MENU** jog dial until the **BLUETOOTH** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **BLUETOOTH** menu item.



- ▶ Turn the **MENU** jog dial to choose between **PAIRING** and **VOLUME**.
- ▶ Press the **MENU** jog dial to open the selected menu item.



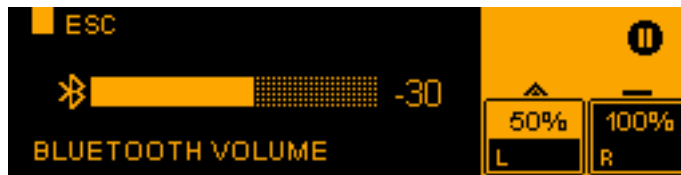
Volume

## Adjusting the volume for the Bluetooth interface

To adjust the input volume for the Bluetooth interface:



- ▶ Open the **VOLUME** menu item.
- ▶ Turn the **MENU** jog dial to adjust the desired input volume for the Bluetooth interface.



- ▶ Press the **MENU** jog dial to store the adjusted volume.



It is recommended to adjust the volume for the Bluetooth interface as high as possible in order to minimize possible noise (hissing or similar). During operation, adjust the volume on the Bluetooth device itself.

Pairing

## Pairing Bluetooth devices

To pair a Bluetooth device with the LSP 500 PRO:

- ▶ Open the **PAIRING** menu item.
- ▶ Turn the **MENU** jog dial to choose between **OFF** and **PAIR**.



- ▶ Press the **MENU** jog dial to activate your selection.
- ▶ Select **OFF** to end an existing Bluetooth connection.
- ▶ Select **PAIR** to pair a Bluetooth device with the LSP 500 PRO:  
Pairing mode is activated. **PAIRING NOW** appears on the display panel and the Bluetooth icon flashes in the status area.



- ▶ Pair your Bluetooth device with the LSP 500 PRO while pairing mode is active. When the Bluetooth connection is successfully established, **PAIRING SUCCESSFUL** appears on the display panel and the Bluetooth icon is displayed steadily in the status area.



When the Bluetooth connection is not made or after an automatic time-out of 30 seconds, **PAIRING FAILED** appears on the display panel.



- ▶ Press the **SLOT 3** jog dial to retry pairing.

**i** Your Bluetooth device displays the LSP 500 PRO as follows: **LSP500-XXXXX**. **XXXXX** stands for the last 5 digits of the LSP 500 PRO's serial number.



**i** The LSP 500 PRO supports automatic reconnection to the last connected device. For information on whether your device supports this function, refer to the instruction manual of your Bluetooth device. When you reset the audio settings of the LSP 500 PRO (see page 54), this will delete all information about the last connected Bluetooth device.



## Settings

The **SETTINGS** menu allows you to adjust the LSP 500 PRO settings.

To open the settings menu:

- ▶  At the first menu level, turn the **MENU** jog dial until the **SETTINGS** menu item is displayed.
- ▶  Press the **MENU** jog dial to open the **SETTINGS** menu item.





The **SETTINGS** menu contains all the options and functions necessary for configuring the LSP 500 PRO.

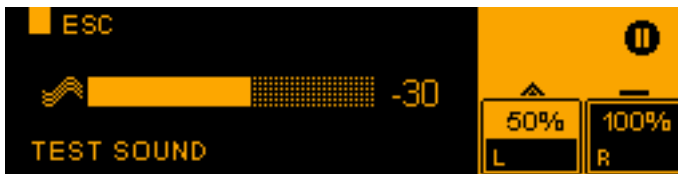




## Test sound

You can play a test sound to check the acoustic function of the LSP 500 PRO.

To play the test sound:

- ▶  In the **SETTINGS** menu, turn the **MENU** jog dial until the **TEST SOUND** menu item is displayed.
- ▶  Press the **MENU** jog dial to open the **TEST SOUND** menu item.



- ▶  Turn the **MENU** jog dial to adjust the volume of the test sound.
- ▶  Press the **MENU** jog dial (or the **SLOT 1** jog dial) to adjust the volume of the test sound to 0 and to return to the previous menu level.

**i** The overall volume of the LSP 500 PRO and the volume of the test sound have no effect on one another. When the test sound is activated, the other signals of the LSP 500 PRO are muted. After exiting the **TEST SOUND** menu item, the previous volume settings are activated again.



Menu  
Settings

Daisy Chain

## Configuring the signal output to additional devices

You can send the signal of the LSP 500 PRO to one or several LSP 500 PRO – either wired via the **LINK OUT** XLR output or wirelessly via a transmitter installed in the **SLOT 1** expansion slot. Via the **LINK OUT** output, you can also send the signal to additional devices (e.g. an active subwoofer).

**i** Changing the master volume on the LSP 500 PRO does not automatically change the master volume of a connected device (additional LSP 500 PRO, active subwoofer, etc.). The master volume of the connected device has to be adjusted separately.

To configure the signal output:



▶ In the **SETTINGS** menu, turn the **MENU** jog dial until the **DAISY CHAIN** menu item is displayed.



▶ Press the **MENU** jog dial to open the **DAISY CHAIN** menu item.



▶ Turn the **MENU** jog dial to choose between **MASTER**, **SLAVE** and **RIGHT-L**.

Option	Function
<b>MASTER</b>	<p>The overall signal of the LSP 500 PRO is available as a mono signal at the <b>LINK OUT</b> output and at the <b>SLOT 1</b> expansion slot.</p> <ul style="list-style-type: none"> <li>▶ Select <b>MASTER</b> if you want to send the overall signal of the LSP 500 PRO to one or several LSP 500 PRO – either wired via the <b>LINK OUT</b> XLR output or wirelessly via a transmitter installed in the <b>SLOT 1</b> expansion slot.</li> </ul>
<b>SLAVE</b>	<p>Only the signal of the <b>LINK IN</b> input is available at the <b>LINK OUT</b> output and at the <b>SLOT 1</b> expansion slot.</p> <ul style="list-style-type: none"> <li>▶ Select <b>SLAVE</b> if you want to daisy-chain several LSP 500 PRO.</li> <li>▶ On the first LSP 500 PRO (master box), select the <b>MASTER</b> option.</li> </ul>
<b>RIGHT-L</b>	<p>Right link mode: The signal of the right channel of the <b>AUX IN</b>, <b>BLUETOOTH</b> and <b>USB</b> stereo inputs is available at the <b>LINK OUT</b> output and at the transmitter installed in <b>SLOT 1</b>. The box that is set to <b>RIGHT-L</b> plays the left stereo channel and the connected box plays the right stereo channel. The mono signals of the <b>SLOT 1</b>, <b>SLOT 2</b>, <b>SLOT 3</b>, <b>MIC</b> and <b>LINK IN</b> inputs are played on both boxes.</p> <ul style="list-style-type: none"> <li>▶ Select <b>RIGHT-L</b> if you want to use 2 LSP 500 PRO in a stereo PA system.</li> </ul>



▶ Press the **MENU** jog dial to activate your selection.



## Display brightness

To adjust the display brightness:



- ▶ In the **SETTINGS** menu, turn the **MENU** jog dial until the **DISPLAY BRIGHTNESS** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **DISPLAY BRIGHTNESS** menu item.



- ▶ Turn the **MENU** jog dial to adjust the display brightness.
- ▶ Press the **MENU** jog dial to store your setting.



## WLAN

To be able to operate the LSP 500 PRO from a tablet with the “LSP 500 PRO” app in a wireless network, you first have to open the **WLAN** menu and connect the LSP 500 PRO to the wireless network to which you also connect your tablet. For information on how to operate the LSP 500 PRO via a tablet, refer to page 23.

### Important information on WLAN operation

In order for you to be able to operate the LSP 500 PRO in a wireless network, the following requirements have to be met. If you have questions, contact your network administrator.

Only unencrypted networks or networks with WPA2 encryption are supported.

Only networks in the 2.4 GHz band are supported (802.11b/g).

The following address and port must be enabled on the network:

- Multicast address 239.255.12.42:1234
- Port 0xD011 (53265)

**i** Basic changes to the WLAN settings of the LSP 500 PRO require a restart of the WLAN module of the LSP 500 PRO. This can take up to 30 seconds.

**i** A list of compatible access points can be found on the LSP 500 PRO product page at [en-de.sennheiser.com/lsp-500-pro](http://en-de.sennheiser.com/lsp-500-pro)

To open the WLAN menu:



- ▶ In the **SETTINGS** menu, turn the **MENU** jog dial until the **WLAN** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **WLAN** menu item.



On/Off

### Switching the WLAN function of the LSP 500 PRO on or off



- ▶ In the **WLAN** menu, turn the **MENU** jog dial until the **WLAN ON/OFF** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **WLAN ON/OFF** menu item.



- ▶ Turn the **MENU** jog dial to choose between **ON** and **OFF**.
- ▶ Press the **MENU** jog dial to activate your selection and to switch the WLAN function on or off.

When the WLAN function is switched on, you can connect the LSP 500 PRO to a wireless network.

**i** The following menu items are only available when the WLAN function is switched on.

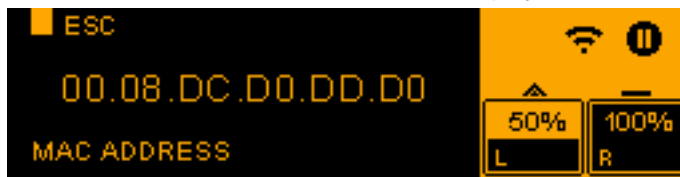
MAC Address

### Displaying the MAC address

To display the MAC address of the LSP 500 PRO:



- ▶ In the **WLAN** menu, turn the **MENU** jog dial until the **MAC ADDRESS** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **MAC ADDRESS** menu item.  
The MAC address of the LSP 500 PRO is displayed.



- ▶ Press the **MENU** jog dial to return to the previous menu level.

IP Mode

### Selecting the assignment mode for the IP address and the IPsubnet mask

The IP address and the subnet mask of the LSP 500 PRO can be assigned automatically or statically. If address assignment is static, you can enter the IP address and the IP subnet mask yourself and change them. If address assignment is automatic, you cannot change the IP address and the IP subnet mask.

To select the assignment mode for the IP address and the IPsubnet mask:

- ▶ In the **WLAN** menu, turn the **MENU** jog dial until the **IP MODE** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **IP MODE** menu item.



- ▶ Turn the **MENU** jog dial to choose between **AUTO** or **FIX**.

Option	Function
<b>AUTO</b>	<p>IP address, IP subnet mask and IP default gateway are automatically assigned via DHCP and cannot be changed.</p> <p>For this option to work, the DHCP server of the access point must be activated.</p>
<b>FIX</b>	<p>IP address, IP subnet mask and IP default gateway can be changed.</p> <p>For this option to work, observe the general network conditions for IP address, IP subnet mask and IP default gateway configuration. If the entered values do not match, no connection can be established.</p>

- ▶ Press the **MENU** jog dial to activate your selection.

IP Address

## Displaying and changing the IP address

### AUTO assignment mode

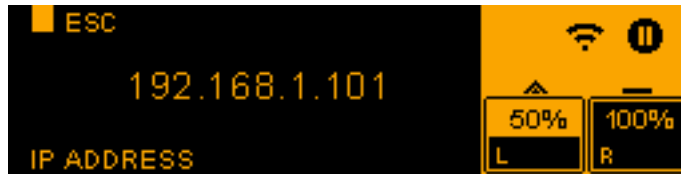
To display the IP address when **AUTO** is the selected assignment mode:



▶ In the **WLAN** menu, turn the **MENU** jog dial until the **IP ADDRESS** menu item is displayed.



▶ Press the **MENU** jog dial to open the **IP ADDRESS** menu item.  
The IP address is displayed.



▶ Press the **MENU** jog dial to return to the previous menu level.

### FIX assignment mode

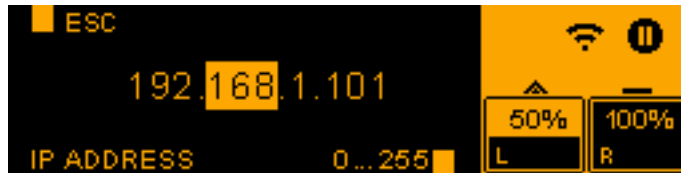
To change the IP address when **FIX** is the selected assignment mode:



▶ In the **WLAN** menu, turn the **MENU** jog dial until the **IP ADDRESS** menu item is displayed.



▶ Press the **MENU** jog dial to open the **IP ADDRESS** menu item.



▶ Configure the IP address using the jog dials that are assigned the following functions:

Jog dial	Action	Function
USB		Enters numbers from 0 to 255
MENU		Switches between the 4 number blocks of the IP address



▶ Press the **MENU** jog dial to store the new IP address.

↳ IP Net Mask

## Displaying and changing the IP subnet mask

### AUTO assignment mode

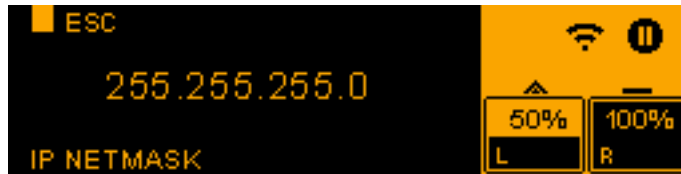
To display the IP subnet mask when **AUTO** is the selected assignment mode:



- ▶ In the **WLAN** menu, turn the **MENU** jog dial until the **IP NETMASK** menu item is displayed.



- ▶ Press the **MENU** jog dial to open the **IP NETMASK** menu item. The IP subnet mask is displayed.



- ▶ Press the **MENU** jog dial to return to the previous menu level.

### FIX assignment mode

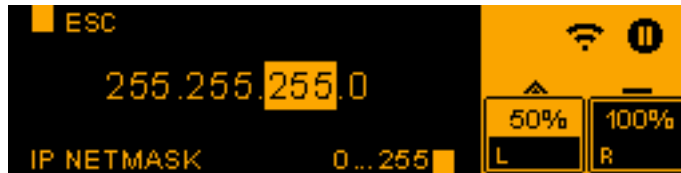
To change the IP subnet mask when **FIX** is the selected assignment mode:



- ▶ In the **WLAN** menu, turn the **MENU** jog dial until the **IP NETMASK** menu item is displayed.



- ▶ Press the **MENU** jog dial to open the **IP NETMASK** menu item.



- ▶ Configure the IP subnet mask using the jog dials that are assigned the following functions:

Jog dial	Action	Function
USB		Enters numbers from 0 to 255
MENU		Switches between the 4 number blocks of the IP subnet mask



- ▶ Press the **MENU** jog dial to store the new IP subnet mask.

IP Gateway

## Displaying and changing the IP default gateway

### AUTO assignment mode

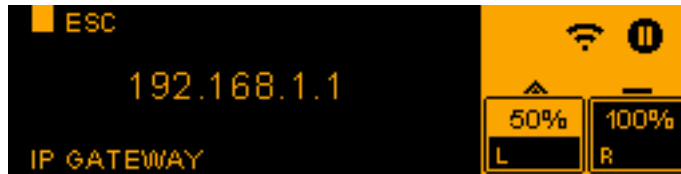
To display the IP default gateway when **AUTO** is the selected assignment mode:



▶ In the **WLAN** menu, turn the **MENU** jog dial until the **IP GATEWAY** menu item is displayed.



▶ Press the **MENU** jog dial to open the **IP GATEWAY** menu item. The IP default gateway is displayed.



▶ Press the **MENU** jog dial to return to the previous menu level.

### FIX assignment mode

To change the IP default gateway when **FIX** is the selected assignment mode:



▶ In the **WLAN** menu, turn the **MENU** jog dial until the **IP GATEWAY** menu item is displayed.



▶ Press the **MENU** jog dial to open the **IP GATEWAY** menu item.



▶ Configure the IP default gateway using the jog dials that are assigned the following functions:

Jog dial	Action	Function
USB		Enters numbers from 0 to 255
MENU		Switches between the 4 number blocks of the IP default gateway



▶ Press the **MENU** jog dial to store the new IP default gateway.

SSID List Selection

### Selecting a network and connecting the LSP 500 PRO to the selected network

To select a wireless network and to connect the LSP 500 PRO to the selected network:

- ▶ In the **WLAN** menu, turn the **MENU** jog dial until the **SSID LIST SELECTION** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **SSID LIST SELECTION** menu item.



When opening this menu item for the first time, a scan for available wireless networks is run. **SCANNING NOW** appears on the display panel and the WLAN icon flashes in the status area.



The available networks are then shown on the display panel. Encrypted networks are marked with a lock icon.

- ▶ If the desired network does not appear in the list of networks, press the **SLOT 3** jog dial (**REFRESH** function) to run a new scan for available networks and to update the list.
- ▶ Turn the **MENU** jog dial to browse up or down through the available networks.
- ▶ Press the **MENU** jog dial to establish a connection to the selected network.

A tick (✓) next to the network name indicates the network to which the LSP 500 PRO is connected. A cross (✖) next to the network name indicates that a connection to this network is not possible since the encryption of the network is not supported by the LSP 500 PRO.

**i** If a network is not encrypted, the connection is established immediately. If a network is WPA2-encrypted, you first have to enter the network key. For information on how to enter the network key, refer to page 50.



SSID Entry

### Manually entering a network name

When a network is hidden, but you know its name, you can manually enter the network name to connect to this network.

- ▶ In the **WLAN** menu, turn the **MENU** jog dial until the **SSID ENTRY** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **SSID ENTRY** menu item.



- ▶ Enter the network name using the jog dials that are assigned the following functions:

Jog dial	Action	Function
MENU		Moves the cursor to the left or right
SLOT 2		Enters a space at the cursor position
SLOT 3		Deletes the character at the cursor position
MIC		Enters capital letters
AUX IN		Enters lower case letters
USB		Enters numbers and special characters

- ▶ Press the **MENU** jog dial to connect to the network whose name you entered. The following selection dialog appears on the display panel:



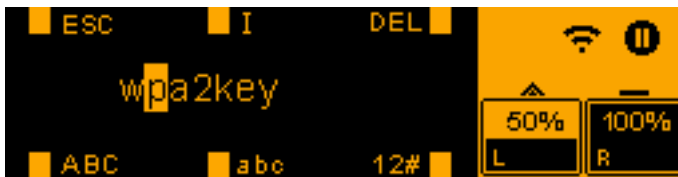
- ▶ Turn the **MENU** jog dial to choose between **OPEN** and **WPA2**.
- ▶ Press the **MENU** jog dial to activate your selection.
- ▶ Select **OPEN** if the network is unencrypted. The connection to the network is established.
- ▶ Select **WPA2** if the network is WPA2-encrypted.

**i** If a network is WPA2-encrypted, you first have to enter the network key. For information on how to enter the network key, refer to page 50.

WPA2 Key

### Entering a network key

If you want to connect the LSP 500 PRO to a WPA2-encrypted wireless network, you are automatically prompted to enter the network key after having selected the network from the list of available networks (see page 48) or after having entered the network name manually (see page 49):



- ▶ Enter the network key using the jog dials that are assigned the following functions:

Jog dial	Action	Function
MENU		Moves the cursor to the left or right
SLOT 2		Enters a space at the cursor position
SLOT 3		Deletes the character at the cursor position
MIC		Enters capital letters
AUX IN		Enters lower case letters
USB		Enters numbers and special characters

- ▶ Press the **MENU** jog dial to confirm the entry of the network key. The connection to the network is now established. This can take up to a minute. When the network connection is established, the WLAN icon appears constantly in the status area of the display panel.

### Saving the network key

Once you have selected a network and entered the corresponding network key, the network key is automatically saved so that the connection can be established faster the next time. In this case, the following is shown on the display panel when the network key is entered:



- ▶ Press the **MENU** jog dial to confirm the saved network key and to establish the connection to the network.
- or
- ▶ Turn the **MENU** jog dial to call up the entry mode for the network key and to enter the network key again.

↳ Multicast



## Setting the multicast address

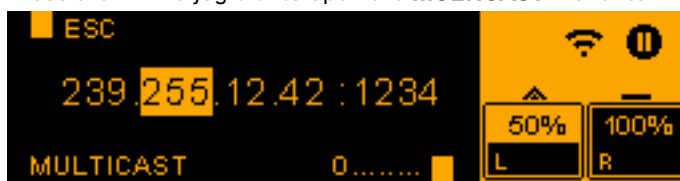
In order to be able to operate the LSP 500 PRO from a tablet using the app (see page 23), both the app and the LSP 500 PRO must be set to the same multicast address and port. If this is not the case, the LSP 500 PRO cannot be operated from a tablet.

**i** The default multicast address and port used by both the LSP 500 PRO and the app is **239.255.12.42 : 1234**



If the default multicast address cannot be used in your network environment, you can change the multicast address and port. Changing the multicast address and port used by the LSP 500 PRO also requires changing the multicast address and port used by the iPad app (iPad → Settings → LSP 500 PRO).


To change the multicast address and port:

-  ▶ In the **WLAN** menu, turn the **MENU** jog dial until the **MULTICAST** menu item is displayed.
-  ▶ Press the **MENU** jog dial to open the **MULTICAST** menu item.



- ▶ Configure the multicast address and port using the jog dials that are assigned the following functions:

Jog dial	Action	Function
USB		Enters numbers from 0 to 255 (address) or from 0 to 65535 (port)
MENU		Switches between the 4 number blocks of the multicast address and the number block of the port

-  ▶ Press the **MENU** jog dial to store the new multicast address and port.

Menu  
Settings

MIC

## Configuring the MIC input

You can reduce the input sensitivity of the **MIC** input by 20 dB. If you are using a condenser microphone, you can also activate the phantom power.

To open the configuration menu for the **MIC** input:



- ▶ In the **SETTINGS** menu, turn the **MENU** jog dial until the **MIC** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **MIC** menu item.



Input Sensitivity

## Adjusting the input sensitivity

In the event of overmodulation/distortion (the red LED of the channel lights up), you can reduce the sensitivity of the **MIC** input.

To adjust the input sensitivity:



- ▶ In the **MIC** menu, turn the **MENU** jog dial until the **INPUT SENSITIVITY** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **INPUT SENSITIVITY** menu item.



- ▶ Turn the **MENU** jog dial to choose between **-20 dB** and **0 dB**.
- ▶ Press the **MENU** jog dial to activate your selection.

Phantom Power

## Activating the phantom power

To activate the phantom power for the **MIC** input:



- ▶ In the **MIC** menu, turn the **MENU** jog dial until the **PHANTOM POWER** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **PHANTOM POWER** menu item.



- ▶ Turn the **MENU** jog dial to choose between **ON** and **OFF**.
- ▶ Press the **MENU** jog dial to activate your selection and to switch the phantom power on or off.

**i** Only activate the phantom power for microphones that require it. Otherwise, malfunctions may occur.



## Detecting devices in the expansion slots

The Sennheiser devices of the ew 300 G3 and ew 500 G3 series feature a media control protocol. The media control protocol sends, among other things, information on the battery and mute status of the associated transmitters and on the names of the individual devices to the app.

In order for the “LSP 500 PRO” tablet app (see page 23) to be able to display this status information, the devices have to be detected once they are installed in the LSP 500 PRO. Device detection has to be performed only once after installation of a device.

- i** Device detection is only necessary if status information from the media control protocol is to be displayed in the app. The devices installed in the LSP 500 PRO also work properly if device detection is not performed.

To start the device detection process:



- ▶ In the **SETTINGS** menu, turn the **MENU** jog dial until the **DEVICE DETECTION** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **DEVICE DETECTION** menu item.



- ▶ Switch the installed ew devices on before starting the device detection process.

- i** In order to avoid possible conflicts with the media control protocol, it is recommended to set the IP assignment mode of the installed ew G3 devices to automatic. If the ew G3 device uses a fixed IP address, the IP address must be in the range from 192.168.16.2 to 192.168.16.253 inclusive. For more information, refer to the instruction manual of the ew G3 device.



- ▶ Press the **MENU** jog dial to start the device detection process.



The device detection process is performed and the display panel displays the slots in which a device with media control protocol has been detected.

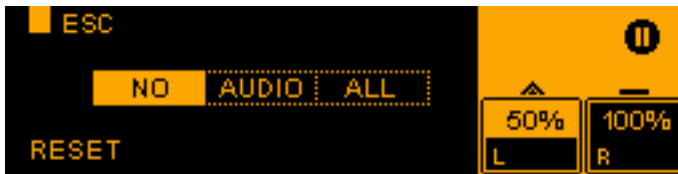
- i** When resetting the settings of the LSP 500 PRO (see page 54), the device detection information is retained in memory.



## Resetting the settings

You can either reset all settings of the LSP 500 PRO to the factory defaults (FACTORY RESET) or you can reset only the audio settings (AUDIO RESET).

- ▶ In the **SETTINGS** menu, turn the **MENU** jog dial until the **RESET** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **RESET** menu item.



- ▶ Turn the **MENU** jog dial to choose between **NO**, **AUDIO** and **ALL**.
- ▶ Press the **MENU** jog dial to activate your selection.

Option	Function
<b>NO</b>	No settings are reset.
<b>AUDIO</b>	All audio settings (volume, EQ, compressor, delay, Bluetooth, virtual bass, phantom power, input sensitivity) are reset. The following confirmation message is displayed: <div style="text-align: center; background-color: black; color: yellow; padding: 10px; margin: 5px 0;"><b>AUDIO RESET ✓</b></div>
<b>ALL</b>	All settings of the LSP 500 PRO are reset to the factory defaults. This can take up to two minutes. During resetting, the following message is displayed: <div style="text-align: center; background-color: black; color: yellow; padding: 10px; margin: 5px 0;"><b>RESETTING, WAIT...</b></div>



## Service

The service menu allows you to retrieve system information and to update the firmware of the LSP 500 PRO.

To open the service menu:



- ▶ At the first menu level, turn the **MENU** jog dial until the **SERVICE** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **SERVICE** menu item.



## System information

Via this menu item, you can display information on the 2 battery packs and on the current firmware version of the LSP 500 PRO.

To display the system information:



- ▶ In the **SERVICE** menu, turn the **MENU** jog dial until the **SYSTEM INFO** menu item is displayed.
- ▶ Press the **MENU** jog dial to open the **SYSTEM INFO** menu item.



### Display of battery information

- ▶ Open the **BATTERY INFO** menu item.

The **BATTERY INFO** menu item contains the following sub menu items:

Menu item	Information displayed
<b>BAT1 SERIAL NO / BAT2 SERIAL NO</b>	Serial number of battery pack 1 / battery pack 2
<b>BAT1 PRODUCT DATE / BAT2 PRODUCT DATE</b>	Production date of battery pack 1 / battery pack 2
<b>BAT1 CYCLE COUNT / BAT2 CYCLE COUNT</b>	Number of charge cycles of battery pack 1 / battery pack 2
<b>BAT1 TEMPERATURE / BAT2 TEMPERATURE</b>	Temperature of battery pack 1 / battery pack 2

### Display of firmware version

- ▶ Open the **FIRMWARE VERSION** menu item.

The current firmware version of the LSP 500 PRO is displayed.



## Updating the firmware


To update the firmware of the LSP 500 PRO:

- ▶ Prepare a USB flash drive (FAT 32 formatting) that contains the new firmware (bps-update.img).
- ▶ Connect the LSP 500 PRO to the mains power supply.
- ▶ Switch on the LSP 500 PRO.
- ▶ Switch on the WLAN function in the **WLAN** menu (see page 42).
- ▶ Connect the USB flash drive containing the new firmware to the USB port of the LSP 500 PRO.
- ▶ Open the **SERVICE** menu.
- ▶ Open the **MAINTENANCE** menu item.
- ▶ Open the **FIRMWARE UPDATE** menu item.

After approximately 8 seconds, the following screen is displayed:



- ▶ Press the **USB** jog dial to start the firmware update.  
The firmware update may take several minutes. After the update, **SUCCESS** appears on the display panel and the LSP 500 PRO is rebooted automatically.

 The same firmware version cannot be installed twice.



### CAUTION

**Malfunction of the LSP 500 PRO due to an interruption during the firmware update!**

Once started, the firmware update must not be interrupted, as this will cause the LSP 500 PRO to malfunction and render it inoperable.

- ▶ Do not disconnect the LSP 500 PRO from the mains power supply.
- ▶ Do not remove any battery pack.
- ▶ Do not pull the USB flash drive out of the USB port.



# Cleaning and maintaining the LSP 500 PRO

## Cleaning

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### CAUTION

#### Damage to the product caused by liquids!

Liquids entering the product can short-circuit the electronics or damage the mechanics.

Solvents or cleansing agents can damage the surface of the product.

- ▶ Keep all liquids away from the product.
- ▶ Do not use any solvents or cleansing agents.

- 
- ▶ Before cleaning, switch the LSP 500 PRO off and disconnect it from the mains power supply.
  - ▶ Only use a dry and soft cloth to clean the LSP 500 PRO.

## Storage

When not using the LSP 500 PRO for extended periods of time, observe the following:









- ▶ Remove the battery packs and store them separately.
- ▶ Use the dust cover supplied with the LSP 500 PRO.


## If a problem occurs ...

Problem	Possible cause	Possible solution	See
The LSP 500 PRO cannot be switched on and the green operation indicator does not light up	No battery packs are inserted; the battery packs are depleted.	Insert/replace the battery packs.	page 11
	The mains cable is not connected.	Connect the mains cable.	page 11
	The LSP 500 PRO's automatic charging system does not function.	Remove the battery packs and disconnect the mains cable, wait for 10 seconds and then reinsert the battery packs.	
The LSP 500 PRO is connected to the mains power supply but the red power indicator does not light up	The power outlet is defective.	Check the power supply.	
	The mains cable is defective.	Replace the mains cable.	
	The LSP 500 PRO's power supply unit is defective.	Contact an authorized Sennheiser service partner.	
No audio signal	The overall volume is set to the minimum.	Adjust the overall volume.	page 17
	The volume of the inputs used is set to the minimum.	Adjust the input volume.	page 17
	A condenser microphone is connected to the MIC input and the phantom power is not activated.	Activate the phantom power.	page 52
	No signal is present at the LINK IN input.	Check the signal chain.	
	The mute function of the installed receiver is activated.	Deactivate the mute function on the installed receiver.	instruction manual of the receiver
The audio signal from a wireless microphone is too low	The output volume of the installed receiver is too low.	Increase the output volume of the installed receiver.	instruction manual of the receiver
The audio signal from a wired microphone is too low	The input sensitivity of the MIC input is set to -20 dB.	Set the input sensitivity to 0 dB.	page 52
The audio from a paired Bluetooth device is too low	The volume of the paired Bluetooth device is too low.	Increase the volume of the paired Bluetooth device.	instruction manual of the Bluetooth device
The audio signal of an input is distorted and the LED of the input lights up red	The output volume of the connected device is too high.	Reduce the output volume of the connected device.	instruction manual of the connected device
Noise occurs at high volume levels	The LSP 500 PRO is overloaded.	Reduce the volume.	page 17
	The LSP 500 PRO is mains operated and no battery pack is inserted.	Insert at least one battery pack that can buffer signal peaks.	page 13
The LSP 500 PRO produces hissing but the overall volume is to low. The green LED flickers only occasionally	The output volume of the connected device is too low.	Increase the output volume of the connected device.	instruction manual of the connected device
When turning the jog dial of an expansion slot, the volume level of a wireless microphone does not change	The installed receiver is incorrectly connected to the LSP 500 PRO.	Check the cable connections of the installed receiver.	page 20
Only the left channel of the stereo signal is heard	The Right Link mode is activated.	Check the signal output configuration.	page 41

Problem	Possible cause	Possible solution	See
A loud whistling sound or feedback is heard	The distance between microphone and LSP 500 PRO is too short.	Increase the distance between microphone and LSP 500 PRO.	
	The gain reduction of the compressor is set too high.	Adjust the gain reduction of the compressor.	page 32
	The EQ is incorrectly adjusted.	Check the EQ settings.	page 29
The tablet app does not display the status information of the associated wireless microphones	Device detection for the installed receivers has not been performed.	Perform device detection.	page 53
	The installed receiver is not connected to the LSP 500 PRO.	Check the cable connections of the installed receiver.	page 20
	The installed receiver does not support the media control protocol.	The media control protocol is only supported by devices of the Sennheiser ew 300 G3 and ew 500 G3 series.	
	The IP address of the installed receiver is not valid.	Check the IP address of the installed receiver.	instruction manual of the receiver
Problems with the WLAN connection	Divers causes	Observe the information on WLAN operation.	page 42
A USB storage device cannot be detected or used	The USB storage device is not formatted or not compatible.	Check if the USB storage device complies with the requirements specified for use with the LSP 500 PRO.	page 35
The charge status display on the battery pack does not light up when the corresponding button is pressed	The battery pack has activated the deep discharge protection.	Recharge the battery pack.	page 12
	The battery pack is defective.	Replace the battery pack by a new one and dispose of the defective battery pack.	page 12
Bad reception on the installed receiver, diversity reception does not function properly	The receiver antennas are not optimally oriented.	Check the orientation of the antennas of the installed receiver.	page 20
The radio transmission between 2 LSP 500 PRO is subject to interference	The transmitter installed in the first LSP 500 PRO is set to stereo operation, the receiver installed in the second LSP 500 PRO can only process mono signals.	Set the transmitter to mono operation.	instruction manual of the transmitter
	The 2 LSP 500 PRO are too far away from one another; the radio transmission is affected by obstacles between the 2 LSP 500 PRO.	Reduce the distance between the 2 LSP 500 PRO; remove obstacles that affect the radio transmission between the 2 LSP 500 PRO.	

## Error and warning messages on the display of the LSP 500 PRO

Indications on the display panel	Meaning	Possible solution	See
	Lock mode is activated	Deactivate the lock mode.	page 18
	Network connection has failed	Access point: Check the DHCP and IP configuration.  LSP 500 PRO: Check the SSID and the network key, check the IP assignment mode or the IP configuration.	page 42
	Entered network key is not correct	Enter the network key again.	page 50
	No network found	Check the available access points and their ranges.	
	Battery charge status < 21%	Replace the battery pack; connect the LSP 500 PRO to the mains power supply.	page 11
	Battery charge status < 6%	Replace the battery pack; connect the LSP 500 PRO to the mains power supply.	page 11
	Critical temperature rise	Reduce the volume; ensure sufficient cooling.	
	Overheating; emergency shutdown of the power output stage	Ensure sufficient cooling; switch off the LSP 500 PRO and let it cool down.	

 It is possible that several error and warning messages are displayed one after the other.

# Specifications

## Housing

Dimensions (W x H x D)	290 x 550 x 320 mm (11.42" x 21.65" x 12.60")
Housing material	crosswise glued plywood sealed with polyurethane coating, black
Front	acoustic foam, black
Bottom	plastic base plate with rubber feet
Handle	integrated carrying handle with plastic coating
Pole mount	36 mm (1.42") tiltable to +/- 13.5° in steps of 4.5°
Weight (without expansion devices, with battery packs)	approx. 13.6 kg (30.0 lb.)

## Acoustics

Acoustic design	2-way system, closed
Drivers	woofer: 8" tweeter: 3/4"
Sound pressure level	max. 110 dB SPL (fullspace)
Frequency response	65 Hz to 18 kHz (-10 dB)
Dispersion (h x v)	80° x 60° (-6 dB)

## Electronics

Amplifier	Class D
Output power	55 W continuous 120 W peak
Equalizer	semiparametric, 3-band

## Connections/interfaces

MIC input	XLR-3F/¼" (6.3 mm) jack combo socket, switchable 48 V phantom power
AUX IN input	RCA stereo socket
LINE OUT output	RCA stereo socket
LINK IN input	XLR-3F
LINK OUT output	XLR-3M
USB port	USB 2.0
Supported file formats	playback: mp3, wav, aac, flac recording: wav
Bluetooth interface	A2DP (SBC and aptX®)
WLAN interface	IEEE 802.11b/g WPA2 encryption
Slot 1/2/3	¼" (6.3 mm) jack; 5.5/1.55 mm hollow jack plug; RJ45

### Power supply

Mains voltage / mains frequency	100 to 240 V~, 50/60 Hz
Battery packs	2x Sennheiser LBA 500, Li-Ion
Battery voltage / nominal charge	14.4 V / 4.4 Ah
Operating time	approx. 6 h (speech) (approx. 3 h per battery pack)
Charging time	approx. 5 h (approx. 2.5 h per battery pack)

### Temperature

Operation	0 °C to 50 °C (32 °F to 122 °F)
Storage	-20 °C to 70 °C (-4 °F to 158 °F)

### Relative air humidity

Operation	10 to 80%
Storage	10 to 90%

### In compliance with

Europe (CE):	Radio: EN 300 328 EN 301 489-1/17 Safety: EN 60065
USA:	Radio: 47 CFR 15 Subpart C
Canada:	RSS 210

## Accessories

The following accessories for the LSP 500 PRO are available:

- LAS 500 slip cover
- LAP 500 protective cover
- LAB 500 trolley bag
- LBA 500 battery pack

Recommended accessories for the expansion slots:

- Devices of the Sennheiser ew G3 series

# Manufacturer Declarations

## Warranty

Sennheiser electronic GmbH & Co. KG gives a warranty of 24 months on this product. For the current warranty conditions, please visit our website at [www.sennheiser.com](http://www.sennheiser.com) or contact your Sennheiser partner.

## In compliance with the following requirements



- WEEE Directive (2012/19/EU)
- Battery Directive (2006/66/EC & 2013/56/EU)

## Notes on disposal

The symbol of the crossed-out wheeled bin on the product, the battery/rechargeable battery (if applicable) and/or the packaging indicates that these products must not be disposed of with normal household waste, but must be disposed of separately at the end of their operational lifetime. For packaging disposal, please observe the legal regulations on waste segregation applicable in your country.

Further information on the recycling of these products can be obtained from your municipal administration, from the municipal collection points, or from your Sennheiser partner.

The separate collection of waste electrical and electronic equipment, batteries/rechargeable batteries (if applicable) and packagings is used to promote the reuse and recycling and to prevent negative effects caused by e.g. potentially hazardous substances contained in these products. Herewith you make an important contribution to the protection of the environment and public health.

## CE EU Declaration of conformity

- RoHS (2011/65/EU)

Hereby, Sennheiser electronic GmbH & Co. KG declares that the radio equipment type LSP 500 PRO is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: [www.sennheiser.com/download](http://www.sennheiser.com/download).



## Certified by

Audio, Video and Similar Electronic Apparatus – Safety Requirements CAN/CSA-C22.2 No. 60065:03 and UL 60065

## Trademarks

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## Japanese Radio Law and Japanese Telecommunications Business Law Compliance

Japanese Radio Law and Japanese Telecommunications Business Law Compliance. This device is granted pursuant to the Japanese Radio Law (電波法) and the Japanese Telecommunications Business Law (電気通信事業法).

This device should not be modified (otherwise the granted designation number will become invalid).



## FCC

This device complies with part 15 of the FCC Rules and RSS Standards. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.



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