SENNHEISER

SR 2000 IEM
SR 2050 IEM

Instruction manual

Contents

For more detailed information on the individual sections of this instruction manual, visit the corresponding product page on our website at www.sennheiser.com.

Important safety instructions

1. Read these instructions.
2. Keep these instructions. Always include these instructions when passing the transmitter on to third parties.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. 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 they exit 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. To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC receptacle.
16. WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
17. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.
18. The mains plug of the power supply cord shall remain readily operable.

Hazard warnings on the rear of the transmitter

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

This symbol is intended to alert the user to the presence of uninsulated dangerous voltage within the transmitter's enclosure that may be of sufficient magnitude to constitute risk of fire or electric shock.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

This symbol is intended to alert the user to the risk of electric shock if the transmitter is opened. There are no user serviceable parts inside. Refer servicing to qualified personnel only.

This symbol is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying this transmitter.

Overloading

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

Replacement parts

When replacement parts are required, be sure the service technician uses replacement parts specified by Sennheiser or those having the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

Safety check

Upon completion of any service or repairs to this device, ask the service technician to perform safety checks to determine that the device is in safe operating order.

Danger of hearing damage due to high volumes

This is a professional transmitter. 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 transmitter is capable of producing sound pressure 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.

Intended use

Intended use of the SR 2000 IEM and SR 2050 IEM transmitters includes:

• having read these instructions, especially the chapter ''Important safety instructions'',

• using the device within the operating conditions and limitations described in this instruction manual.

''Improper use'' means using the device other than as described in these instructions, or under operating conditions which differ from those described herein.

The SR 2000 IEM and SR 2050 IEM transmitters

With the SR 2000 IEM and SR 2050 IEM 2-channel/stereo monitoring transmitters, musicians, video and sound amateurs, reporters/broadcasters, etc. can directly monitor the received sound signals without troublesome cables or monitor speakers being required. In addition, the transmitters can also be used for any application where talkback signals are to be transmitted.

Features of the SR 2000 IEM and SR 2050 IEM transmitters:

- Optimized PLL synthesizer and microprocessor technology
- Stereo/mono selection
- HDX noise reduction system
- Switching bandwidth of up to 75 MHz
- Safe configuration of a multi-channel system using the WSM
- Easy setup of a multi-channel system using the Easy Setup Sync function

The frequency bank system

The transmitters are available in 5 UHF frequency ranges with up to 3,000 transmission frequencies per frequency range:
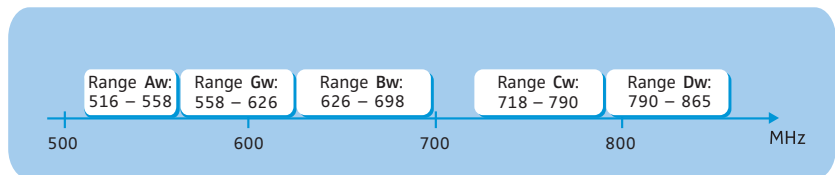
Each frequency range (Aw–Dw, Gw) offers 26 frequency banks with up to 32 channels each:
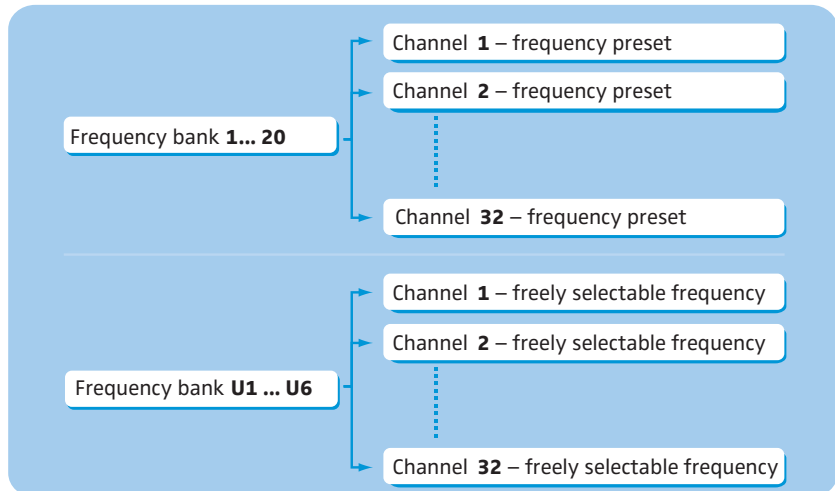
Each of the channels in the frequency banks "1" to "20" has been factory-preset to a fixed transmission frequency (frequency preset). The factory-preset frequencies within one frequency bank are intermodulation-free. These frequencies cannot be changed.

For an overview of the frequency presets, please refer to the supplied frequency information sheet. Updated versions of the frequency information sheet can be downloaded from the corresponding product page on our website at www.sennheiser.com.

The frequency banks "U1" to "U6" allow you to freely select and store transmission frequencies. It might be that these transmission frequencies are not intermodulation-free (see page 22).

Areas of application

The transmitters can be combined with the EK 2000 IEM diversity receiver. For more information, visit our website at www.sennheiser.com.

This receiver is available in the same UHF frequency ranges and is equipped with the same frequency bank system with factory-preset frequencies. An advantage of the factory-preset frequencies is that

- a transmission system is ready for immediate use after switch-on,
- several transmission systems can be operated simultaneously on the preset frequencies without causing intermodulation interference.

Delivery includes

The packaging contains the following items:

1 SR 2000 IEM transmitter or 1 SR 2050 IEM twin transmitter

3 mains cables (with EU, UK and US plug)

1 rod antenna (SR 2000 IEM) or 2 rod antennas (SR 2050 IEM)

1 instruction manual

1 frequency information sheet

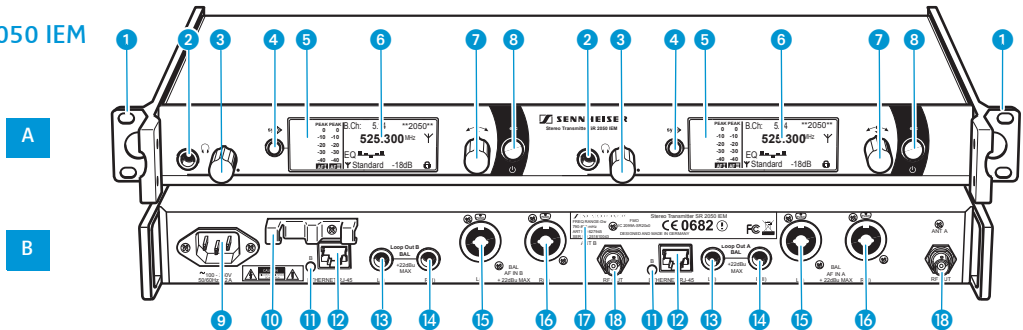1 RF licensing information sheet

4 self-adhesive device feet

Product overview

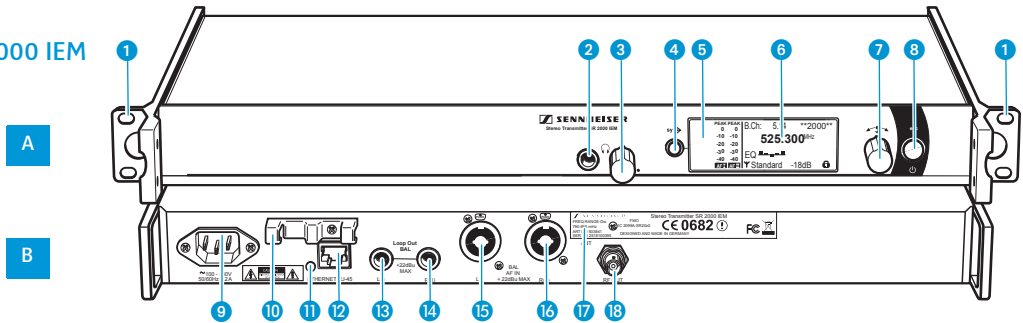## Overview of the SR 2000 IEM/SR 2050 IEM transmitter

ℹ️ The SR 2050 IEM twin transmitter has the same operating elements as the SR 2000 IEM transmitter. All information contained in this instruction manual refers to both transmitters.

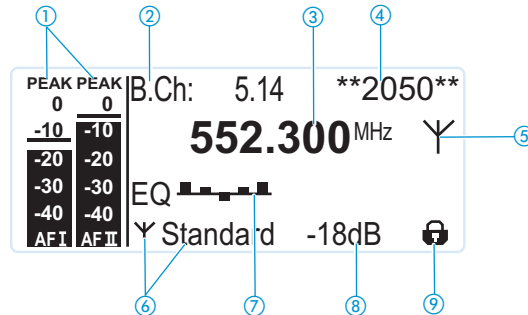| A	Operating elements – front panel
①	Rack mount ''ear''
②	Headphone output, ¼'' (6.3 mm) jack socket (🎧)
③	Headphone volume control
④	sync ▷ button, backlit
⑤	Infra-red interface
⑥	Display panel, backlit in orange
⑦	Jog dial
⑧	STANDBY button with operation indication (red backlighting), serves as the ESC (cancel) key in the operating menu

During mono operation, the signal from the left audio input (¼'' (6.3 mm) jack/XLR-3 combo socket ⑮) is transmitted.

B	Operating elements – rear panel
⑨	3-pin mains socket
⑩	Cable grip for power supply DC cable
⑪	LED (yellow) for network activity indication*
⑫	LAN socket (ETHERNET RJ-45)*
⑬	Audio output left (LOOP OUT BAL L(I)), ¼'' (6.3 mm) jack socket*
⑭	Audio output right (LOOP OUT BAL R(II)), ¼'' (6.3 mm) jack socket*
⑮	Audio input left (BAL AF IN L(I)), ¼'' (6.3 mm) jack/XLR-3 combo socket*
⑯	Audio input right (BAL AF IN R(II)), ¼'' (6.3 mm) jack/XLR-3 combo socket*
⑰	Type plate
⑱	Antenna output (RF OUT), BNC socket*

*   These operating elements are available twice on the SR 2050 IEM twin transmitter and are labeled A and B respectively. A designates the left-hand transmitter, B the right-hand one (seen from the front).

Overview of the displays

After switch-on, the transmitter displays the standard display.

Display		Meaning	
①	Audio level "AF I" and "AF II" (Audio Frequency)		Modulation of the left (AF I) and right (AF II) audio channel with peak hold function
			When the level displays for audio level show full deflection, the audio input level is excessively high. When the transmitter is overmodulated frequently or for extended periods of time, the "PEAK" display is shown inverted.
			During mono operation, only the "AF I" display is shown.
②	Frequency bank and channel		Current frequency bank and channel number
③	Frequency		Current transmission frequency
④	Name		Freely selectable name of the transmitter
⑤	Transmission icon		RF signal is being transmitted
⑥	Transmission power		Current transmission power
⑦	Equalizer setting		Current equalizer setting
⑧	Input sensitivity		Current input sensitivity for the audio signal available at the audio input sockets BAL AF IN L (I) ⑮ and BAL AF IN R (II) ⑯
⑨	Lock mode icon		Lock mode is activated (see page 14)

7

Putting the transmitter into operation

Setting up the transmitter on a flat surface

> ℹ️ Do not fit the device feet when mounting the transmitter into a 19″ rack.

▶ Clean the base of the transmitter where you want to fix the device feet.

▶ Fit the device feet to the four corners of the transmitter.

▶ Place the transmitter on a flat, horizontal surface. Please note that the device feet can leave stains on delicate surfaces.
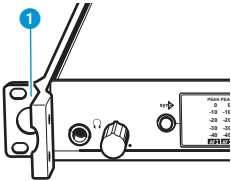
Mounting the transmitter into a 19″ rack

CAUTION!

⚠️

Risks when rack mounting the transmitter!

When installing the device in a closed or multi-rack assembly, please consider that, during operation, the ambient temperature, the mechanical loading and the electrical potentials will be different from those of devices which are not mounted into a rack.

▶ Sure that the ambient temperature within the rack does not exceed the permissible temperature limit specified in the specifications.

▶ If necessary, provide additional ventilation.

▶ Make sure that the mechanical loading of the rack is even.

▶ When connecting to the power supply, observe the information indicated on the type plate. Avoid circuit overloading. If necessary, provide overcurrent protection.

▶ When rack mounting, please note that intrinsically harmless leakage currents of the individual mains units may accumulate, thereby exceeding the allowable limit value. As a remedy, ground the rack via an additional ground connection.

▶ Slide the transmitter into the 19″ rack.

▶ Secure the rack mount "ears" ❶ to the rack using four screws (not included in the delivery).

Connecting the antennas

You have the following options:

• For professional use, we recommend connecting a remote antenna and, if necessary, using Sennheiser antenna accessories (see next section and the chapter "Connecting several transmitters to a remote antenna" on page 9).

• If the transmitter is to be put into operation without a large amount of installation work, you can:

  – connect the supplied rod antenna to the rear of the transmitter (see page 9) or

  – use the optional GA 3030 AM antenna front mount kit (see page 9).

Connecting and positioning a remote antenna

Use a remote antenna when the transmitter position is not the best antenna position for optimum transmission. You can choose between two antennas (see "Accessories" on page 23):

- A 2003 UHF passive directional broadband antenna
- A 1031 passive omni-directional broadband antenna
▶ Use a low-attenuation 50-Ω cable to connect the antenna to the transmitter.
▶ If possible, use a short antenna cable and as little connections as possible, since long cables and many connectors lead to an attenuation of the antenna signal.
▶ Position the antenna in the same room in which the transmission takes place.
▶ Observe a minimum distance of 1 m between the antenna and metal objects (including reinforced concrete walls).

> You can connect several transmitters to the same remote antenna (see next section).

### Connecting several transmitters to a remote antenna

To make multi-channel systems, you should use the AC 3200 antenna combiner (optional accessory). The AC 3200 allows you to operate up to eight transmitters with a single antenna without virtually any intermodulation.
▶ Connect the AC 3200 antenna combiner to the BNC socket ⑱.

Connecting the rod antenna to the rear of the transmitter

The supplied rod antenna ⑲ is suitable for all applications where the transmitter is to be put into operation without a large amount of installation work.
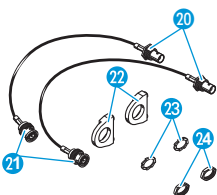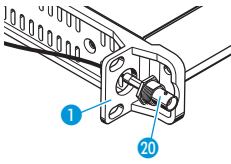▶ Connect the rod antenna ⑲ to the BNC socket ⑱.
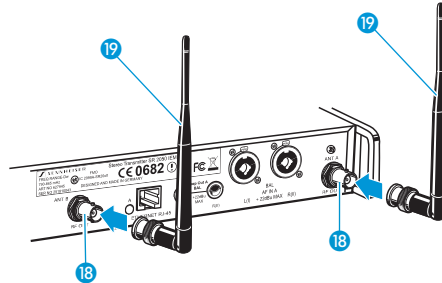
Mounting the antennas to the front of the rack

To mount the antenna connections to the front of the rack when rack mounting the transmitter, you require the GA 3030 AM antenna front mount kit (optional accessory). The GA 3030 AM consists of:
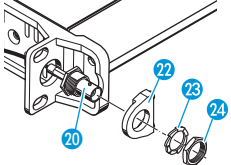

- 2 BNC extension cables (screw-in BNC socket ⑳ to BNC connector ㉑),
- 2 antenna holders ㉒,
- 4 screws,
- 2 washers ㉓,
- 2 nuts ㉔.

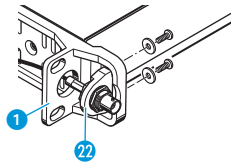▶ Guide the BNC connector ㉑ of the BNC extension cable through the hole in the rack mount "ear" ❶.
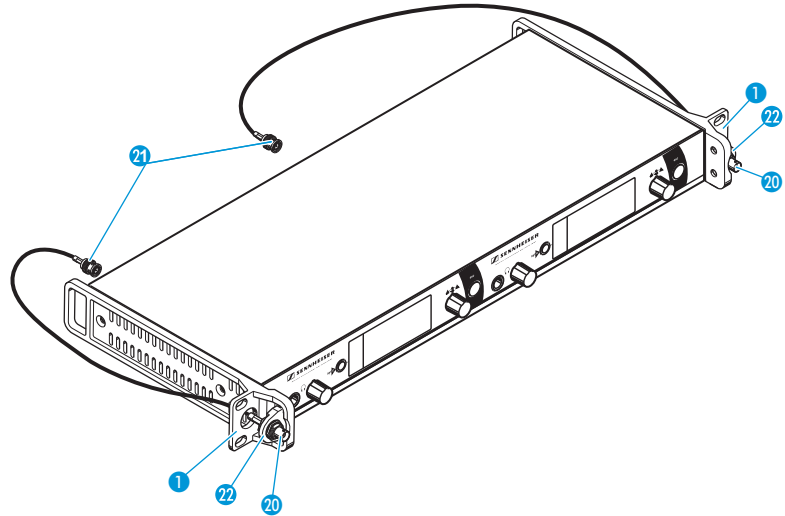
▶ Connect the BNC connector ㉑ to the antenna output ⑱.

▶ Screw the antenna holder ㉒ to the BNC socket ⑳ using the supplied washer ㉓ and nut ㉔.

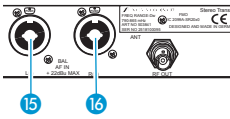▶ Secure the antenna holder ㉒ to the rack mount "ear" ❶ of the transmitter using two of the supplied screws.

If you are using the SR 2050 IEM twin transmitter:

▶ Mount the second BNC extension cable in the same way.

▶ Slide the transmitter into the 19" rack.

▶ Connect the rod antennas ⑲ to the two BNC sockets ⑳.
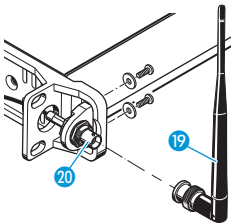
Connecting an audio source to the input sockets

▶ Use a suitable cable to connect the output of the audio source (e.g. mixing console) to the ¼'' (6.3 mm) jack/XLR-3 combo socket BAL AF IN L(I) ⑮ and/or BAL AF IN R(II) ⑯.

▶ Via the operating menu, adjust the transmitter's input sensitivity. The input sensitivity is adjusted via the "Sensitivity" menu item and is common for both inputs.

ℹ You can connect several transmitters to the same audio source (see next chapter).

Daisy chaining audio signals

The output sockets LOOP OUT BAL L ⑬ and/or LOOP OUT BAL R ⑭ allow you to daisy chain a signal that is to be transmitted to all receivers from the mixing console to one transmitter and then to the other transmitters. To do so, proceed as follows:

▶ Route a signal from the mixing console to the input socket (in this example: BAL AF IN R ⑯) of transmitter A.
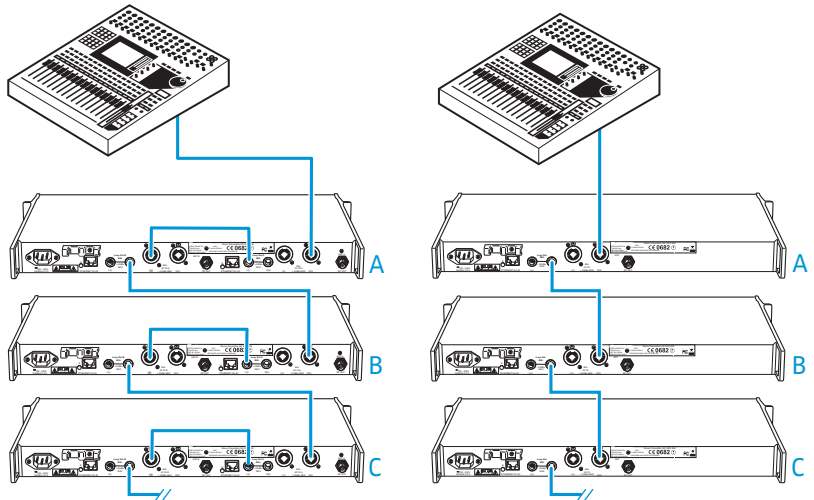
▶ Connect the output socket LOOP OUT BAL R ⑭ of transmitter A to the input socket BAL AF IN R ⑯ of transmitter B.

▶ Connect the output socket LOOP OUT BAL R ⑭ of transmitter B to the input socket BAL AF IN R ⑯ of transmitter C.

▶ Repeat for the other transmitters.

ℹ The AF output sockets LOOP OUT BAL L ⑬ and/or LOOP OUT BAL R ⑭ will work only when the transmitter is switched on and powered.

Connecting devices to the output sockets
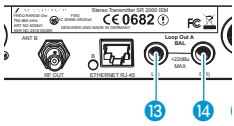
▶ Use a suitable cable to connect the audio input of a device (e.g. a mixing console or an additional SR 2000 IEM or SR 2050 IEM) to the output socket LOOP OUT BAL L(I) ⑬ and/or LOOP OUT BAL R(II) ⑭ (see preceding chapter).

> ℹ The signal received from the AF input sockets BAL AF IN L(I) ⑮ and BAL AF IN R(II) ⑯ is actively buffered and then routed to the output sockets LOOP OUT BAL L(I) ⑬ and LOOP OUT BAL R(II) ⑭. The AF output sockets will therefore work only when the transmitter is switched on and powered.

Connecting transmitters in a network

You can connect several transmitters in a network. The transmitters are remote controlled via a PC running the "Wireless Systems Manager" (WSM) software. This software will assist in the quick and safe configuration of multi-channel systems.

> ℹ The "Wireless Systems Manager" (WSM) software can be downloaded from the corresponding product page on our website at www.sennheiser.com.
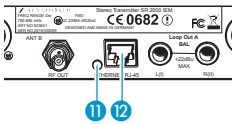
▶ Connect a standard network cable (at least Cat 5) to the LAN socket ⑫ of the transmitter.
▶ Connect your transmitters to an Ethernet switch.
▶ Connect a PC to the Ethernet switch.
  When a transmitter is properly connected to the Ethernet switch or the PC, the yellow LED ⑪ at the rear of the transmitter lights up.

For further information on network operation, refer to page 22.

Connecting the mains cable

CAUTION!	**Damage due to electric current!**

If you connect the transmitter to an unsuitable power supply, this can cause damage to the device.

▶ Use the supplied mains cable to connect the transmitter to the mains (100 to 240 V AC, 50 or 60 Hz).
▶ Ensure a reliable mains ground connection of the transmitter – especially when you are using multi-outlet power strips or extension cables.
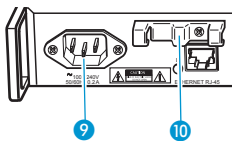
▶ Pass the mains cable through the cable grip ⑩.
▶ Connect the mains cable to the mains socket ⑨.
▶ Plug the mains plug into the wall socket.

Using the transmitter

To establish a transmission link, proceed as follows:

1. Switch the transmitter on (see below).

2. Switch the EK 2000 IEM receiver on (see the instruction manual of the receiver).
The transmission link is established.

> It is vital to observe the notes on frequency selection on page 22.

If you cannot establish a transmission link between transmitter and receiver:

▶ Make sure that transmitter and receiver are set to the same frequency bank and to the same channel.

▶ If necessary, read the chapter ''If a problem occurs ...'' on page 24.

Switching the transmitter on/off
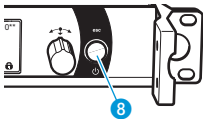
To switch the transmitter on (online operation):

▶ Briefly press the STANDBY button 8.
The transmitter switches on and the standard display appears.
The transmitter transmits an RF signal and the transmission icon 5 is displayed.

To switch the transmitter to standby mode:

▶ If necessary, deactivate the lock mode (see page 14)

▶ Keep the STANDBY button 8 pressed until ''OFF'' appears on the display panel.
The display panel switches off.

> When in the operating menu, pressing the STANDBY button 8 will cancel your entry (ESC function) and return you to the standard display.
>
> The STANDBY button 8 is backlit in red both during operation and in standby mode.

To switch the transmitter on and to deactivate the RF signal on switch-on (offline operation):

▶ Press the STANDBY button 8 until ''RF Mute On?'' appears on the display panel.

▶ Press the jog dial.
The transmission frequency is displayed but the transmitter does not transmit an RF signal. The transmission icon 5 is not displayed.
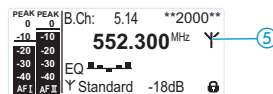
To completely switch the transmitter off:

▶ Disconnect the transmitter from the mains by unplugging the mains plug from the wall socket.
The backlighting of the STANDBY button 8 goes off.