



EM 2000
EM 2050

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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 receiver 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 receiver



The label shown on the left is attached to the rear of the receiver. 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 receiver's enclosure that may be of sufficient magnitude to constitute risk of fire or electric shock.



This symbol is intended to alert the user to the risk of electric shock if the receiver 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 receiver.

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 receiver. 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 receiver 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 EM 2000 receiver 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 EM 2000 and EM 2050 rack-mount receivers

This rack-mount receiver is part of the 2000 series. With this series, Sennheiser offers high-quality state-of-the-art RF transmission systems with a high level of operational reliability and ease of use. Transmitters and receivers permit wireless transmission with studio-quality sound.

Features of the 2000 series:

- Optimized PLL synthesizer and microprocessor technology
- HDX noise reduction system
- Pilot tone squelch control
- True diversity technology
- Switching bandwidth of up to 75 MHz
- Safe configuration of a multi-channel system via a network
- Scan function (Easy Setup) for scanning the frequency banks for unused channels

Areas of application

The receiver can be combined with the following transmitters of the 2000 series:

Transmitter	Type
SK 2000	Bodypack transmitter
SKM 2000	Radio microphone
SKP 2000	Plug-on transmitter

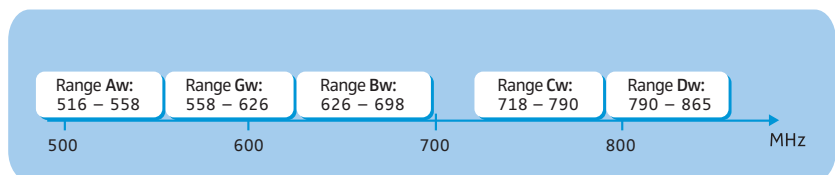
For more information, visit the EM 2000 product page on our website at www.sennheiser.com.

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

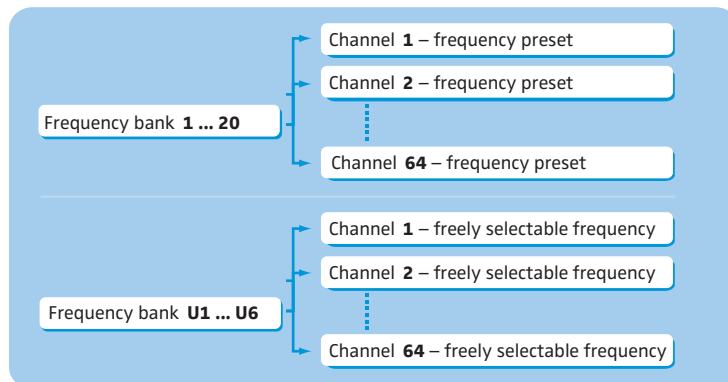
- a transmission system is ready for immediate use after switch-on,
- several transmission systems can be operated simultaneously on the preset frequencies without causing intermodulation interference.

The frequency bank system

The receivers are available in 6 UHF frequency ranges with up to 3,000 receiving frequencies per frequency range:



Each frequency range (Aw–Ew, Gw) offers 26 frequency banks with up to 64 channels each:



Each of the channels in the frequency banks “1” to “20” has been factory-preset to a fixed receiving 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 receiving frequencies. It might be that these receiving frequencies are **not** intermodulation-free.

Delivery includes

The packaging contains the following items:

- 1 EM 2000 rack-mount receiver
- or
- 1 EM 2050 rack-mount twin receiver
- 3 mains cables (with EU, UK and US plug)
- 2 rod antennas
- 4 self-adhesive device feet
- 1 instruction manual
- 1 frequency information sheet
- 1 RF power information sheet

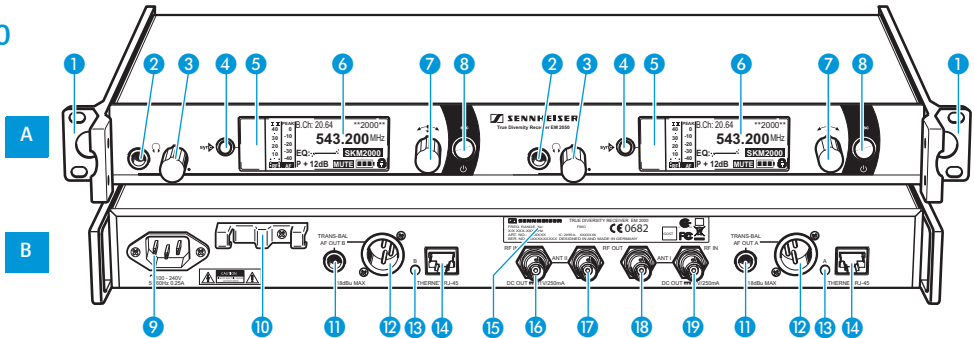
Product overview

Overview of the EM 2000/EM 2050 receiver

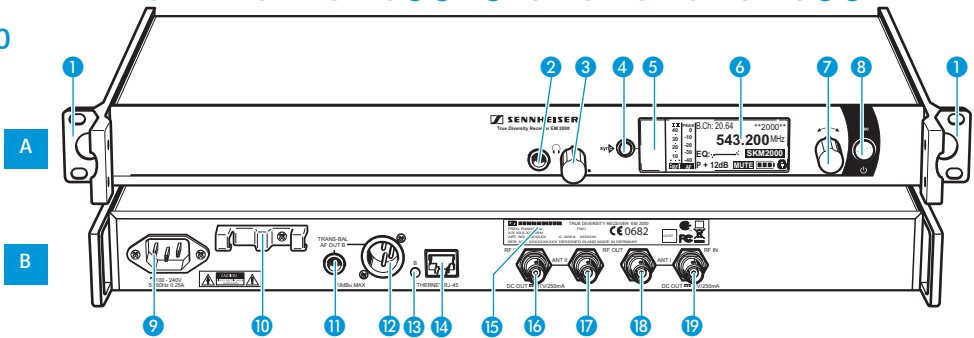


The EM 2050 twin receiver has the same operating elements as the EM 2000 receiver. All information contained in this instruction manual refers to both receivers.

EM 2050



EM 2000



A Operating elements – front panel

- 1 Rack mount "ear"
- 2 Headphone output, 1/4" (6.3 mm) jack socket (🎧)
- 3 Headphone volume control
- 4 **syn** 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

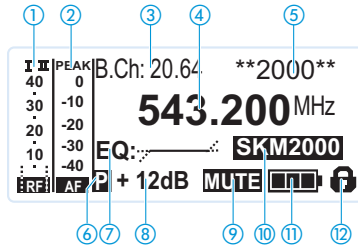
B Operating elements – rear panel

- 9 3-pin mains socket
- 10 Cable grip for power supply DC cable
- 11 Audio output (TRANS BAL AF OUT), 1/4" (6.3 mm) jack socket, transformer balanced
- 12 Audio output (TRANS BAL AF OUT), XLR-3M socket, transformer balanced
- 13 LED (yellow) for network activity indication
- 14 LAN socket (ETHERNET RJ 45)
- 15 Type plate
- 16 Antenna input II (ANT II RF IN) with booster supply voltage, cannot be switched off, short-circuit proof, BNC socket
- 17 Antenna output II (ANT II RF OUT), BNC socket
- 18 Antenna output I (ANT I RF OUT) BNC socket
- 19 Antenna input I (ANT I RF IN) with booster supply voltage, cannot be switched off, short-circuit proof, BNC socket





Overview of the displays

After switch-on, the receiver displays the standard display “Receiver Parameters”. For further illustrations and examples of the different standard displays, please refer to page 15.

This standard display displays the operating states of the receiver and provides the most important information on the received transmitter – provided the linked transmitter supports this function.



Display	Device	Meaning
① RF level “RF” (Radio Frequency)	Receiver	<p>I II Diversity display:</p> <ul style="list-style-type: none"> I II Antenna input I is active I II Antenna input II is active <p>RF signal level: Field strength of the transmitted signal</p> <p>RF Squelch threshold level</p>
② Audio level “AF” (Audio Frequency, see page 22)	Transmitter	<p>PEAK Modulation of the transmitter with peak hold function</p> <ul style="list-style-type: none"> 0 When the display shows full deflection, the audio input level is excessively high. -10 -20 When the transmitter is overmodulated frequently or for extended periods of time, the “PEAK” display is shown inverted. -30 -40 <p>AF</p>
③ Frequency bank and channel (see page 21)	Receiver	Current frequency bank and channel number
④ Frequency (see page 21)		Current receiving frequency
⑤ Name (see page 21)		Freely selectable name of the receiver
⑥ Pilot tone “P” (see page 24)		Activated pilot tone evaluation
⑦ Equalizer setting (see page 22)		Current equalizer setting
⑧ Output gain (see page 22)	Receiver	Current output gain
⑨ Muting function “MUTE” (see page 15)	Receiver/transmitter	Receiver is muted Receiver does not output an audio signal (see page 31).

Display	Device	Meaning
⑩ Transmitter type	Transmitter	Product name of the linked 2000 series transmitter The product name is displayed only if the linked transmitter supports this function.
⑪ Battery status	Transmitter	Charge status:  approx. 100%  approx. 70%  approx. 30%  battery icon is flashing; charge status is critical When the battery charge status is critical, "Low Battery" flashes in alternation with the standard display.
⑫ Lock mode icon (see page 22)	Receiver	Lock mode is activated

Putting the receiver into operation

Preparing the receiver for use

Setting up the receiver on a flat surface

Fitting the device feet



Do not fit the device feet when mounting the receiver into a 19" rack.

- ▶ Clean the base of the receiver where you want to fix the device feet.
- ▶ Fit the device feet to the four corners of the receiver.
- ▶ Place the receiver on a flat, horizontal surface. Please note that the device feet can leave stains on delicate surfaces.
- ▶ Connect the antennas (see page 9).

Mounting the receiver into a 19" rack

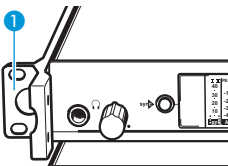
CAUTION!



Risks when rack mounting the receiver!

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.

- ▶ Make sure that the ambient temperature within the rack does not exceed the permissible temperature limit specified in the specifications.
- ▶ Ensure sufficient ventilation; 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 receiver into the 19" rack.
- ▶ Secure the rack mount "ears" ❶ to the rack using four screws (not included in the delivery).
- ▶ Connect the antennas (see next chapter).

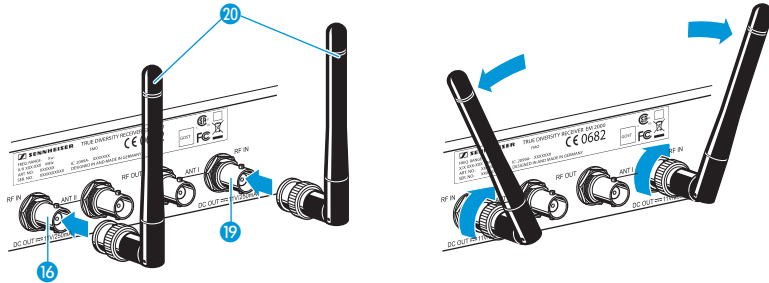
Connecting the antennas

You have the following options:

- You can connect the supplied rod antennas to the rear of the receiver (see next section).
- You can use the optional AM 2 antenna front mount kit (see page 10).
- For professional use, we recommend connecting remote antennas and, if necessary, using Sennheiser antenna accessories (see page 11).

Connecting the rod antennas to the rear of the receiver

- ▶ Connect the rod antennas **20** (see diagram).
- ▶ Align the antennas in a V-shape.

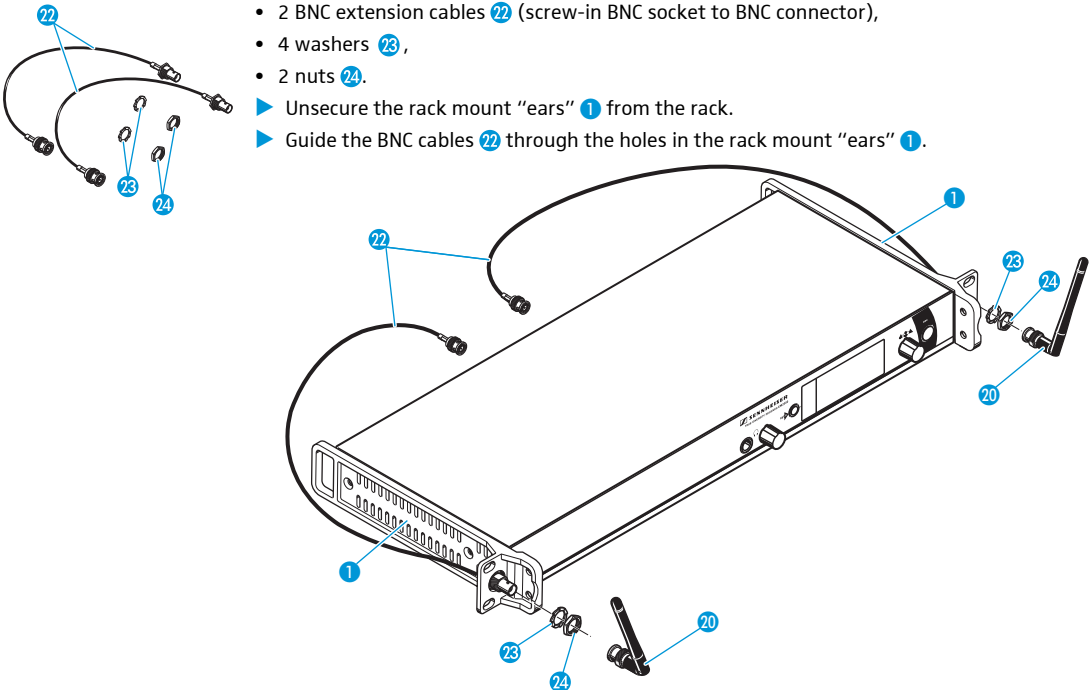


Mounting the antennas to the front of the rack

To mount the antenna connections to the front of the rack when rack mounting the receiver, you require the AM 2 antenna front mount kit (optional accessory). The AM 2 consists of:

- 2 BNC extension cables **22** (screw-in BNC socket to BNC connector),
- 4 washers **23**,
- 2 nuts **24**.

- ▶ Unsecure the rack mount "ears" **1** from the rack.
- ▶ Guide the BNC cables **22** through the holes in the rack mount "ears" **1**.



- ▶ Connect the two BNC connectors of the BNC cables **22** to the BNC sockets **16** and **19** of the receiver.
- ▶ Slide the receiver into the 19" rack.
- ▶ Resecure the rack mount "ears" **1** to the rack.

- ▶ Connect the rod antennas 20 to the two BNC sockets of the BNC cables 22.
- ▶ Align the antennas upwards in a V-shape.

Connecting remote antennas (optional accessories)

CAUTION!

Danger of damage to the antennas

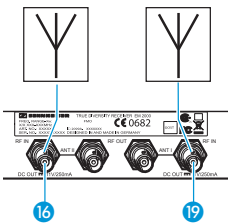
To supply an active direction antenna (e.g. A 3700 for the UHF range) or an antenna booster (e.g. AB 3700), a direct voltage (which cannot be switched off) is output via the antenna sockets of the receiver. If you use antennas from other manufacturers, take into account that these must be installed with direct voltage decoupling. The output voltage supply is short circuit-proof, but an active antenna connected to this supply increases the current consumption of the overall device.

CAUTION!

Danger of short-circuit due to uninsulated antennas!

A 11 V DC voltage is applied to the antennas – **even when you switch the receiver off!** If uninsulated antennas come into contact with objects which conduct electricity, this voltage can produce sparking and audio interference.

- ▶ Either use insulated antennas or
- ▶ always mount uninsulated antennas so that they cannot come into contact with objects which conduct electricity.



- ▶ Connect two remote antennas to the BNC sockets 16 and 19.

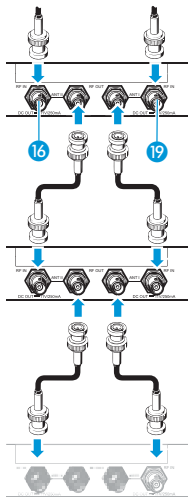
Positioning the remote antennas

- ▶ Position antennas in the same room in which the transmission takes place.
- ▶ Keep the distance between the receiving antennas as large as possible.
- ▶ There should be a “free line of sight” between transmitter and receiving antennas.

Daisy-chaining up to ten receivers

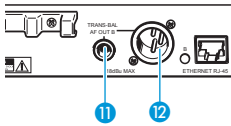
The receivers feature an integrated antenna splitter so that up to 10 receivers can be daisy-chained without any additional antenna splitters being required. Only daisy-chain receivers from the same frequency range (see page 4).

- ▶ Connect the two supplied rod antennas or two remote antennas (optional accessories) to the BNC sockets 16 and 19 of the first receiver.
- ▶ Use BNC cables to daisy-chain the receivers as shown in the diagram on the left.



- To supply an active directional antenna, a direct voltage (which cannot be switched off) is output via the antenna sockets 16 and 19 of the receivers.
- In order to obtain a good reception, we recommend not to daisy-chain more than 10 receivers.
- If you set a daisy-chained receiver to **standby mode** (see “Switching the receiver on/off” on page 13), the integrated antenna splitter remains active.

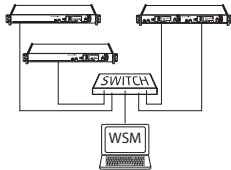
Connecting an amplifier/mixing console



The receiver's XLR-3M socket 12 and the 1/4" (6.3 mm) jack socket 11 are connected in parallel.

- ▶ Use a suitable cable to connect the amplifier and/or the mixing console to the XLR-3M socket 12 and/or the 1/4" (6.3 mm) jack socket 11 (see also page 34).
- ▶ Via the operating menu, adjust the audio output level ("AF Out") of the receiver to the input of the amplifier or mixing console (see page 17). The audio output level is adjusted via the operating menu and is common for both sockets.

Connecting receivers in a network



You can connect several receivers in a network. The receivers 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.

For further information on multi-channel operation, visit the corresponding product page on our website at www.sennheiser.com.

- ▶ Use standard network cable (at least Cat 5) to connect the receivers via the LAN socket 14 to an Ethernet switch. Connect a computer to the Ethernet switch (see diagram). When a receiver is properly connected to the Ethernet switch or the computer, the yellow LED 13 at the rear of the receiver lights up.



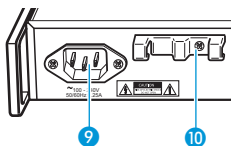
The EM 2050 twin receiver has a separate LAN socket 14 for each receiver.

Connecting the mains cable

CAUTION! Damage due to electric current!

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

- ▶ Use the supplied mains cable to connect the receiver to the mains (100 to 240 V AC, 50 or 60 Hz).
 - ▶ Ensure a reliable mains ground connection of the receiver – 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 receiver

To establish a transmission link, proceed as follows:

1. Switch the receiver on (see below).
2. Switch the transmitter on (see the instruction manual of the transmitter).
The transmission link is established and the display backlighting of the receiver changes from red to orange.

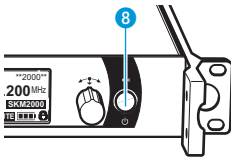


It is vital to observe the notes on frequency selection on page 29.

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

- ▶ Make sure that transmitter and receiver are set to the same frequency.
- ▶ If necessary, read the chapter "If a problem occurs ..." on page 31.

Switching the receiver on/off



To switch the receiver **on**:



- ▶ Briefly press the **STANDBY** button.
The receiver switches on and the "Receiver Parameters" standard display appears.

To switch the receiver to **standby mode**:

- ▶ If necessary, deactivate the lock mode (see page 14).
- ▶ Keep the **STANDBY** button pressed until "OFF" appears on the display panel.
The integrated antenna splitter and the booster supply voltage remain active so that the antenna signals are still looped through to daisy-chained receivers.



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

To completely switch the receiver **off**:

- ▶ Disconnect the receiver from the mains by unplugging the mains cable plug from the wall socket.
The backlighting of the **STANDBY** button **8** goes off.

Monitoring the audio signal via headphones

You can monitor the audio signal via the headphone output.

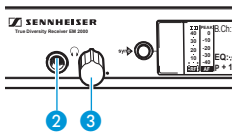
CAUTION!



Danger of hearing damage!

Listening at high volume levels for long periods can lead to permanent hearing defects.

- ▶ Set the headphone volume control **3** to the minimum position before putting the headphones on.



- ▶ Set the headphone volume control (3) to the minimum position.
- ▶ Connect headphones with a 1/4" (6.3 mm) stereo jack plug to the headphone output (2).
- ▶ Gradually increase the volume and monitor the audio signal with the lowest possible volume.

sync Synchronizing a transmitter with the receiver

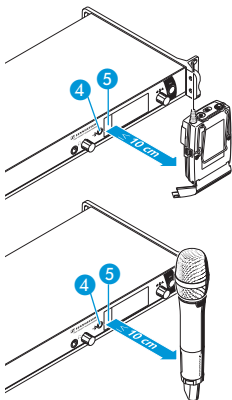
You can synchronize a suitable transmitter of the 2000 series with the receiver. By default, the following parameters are transferred to the transmitter during synchronization:

Setting	Transferred parameters
"Frequency Preset"	Currently set frequency
"Name"	Freely selectable name currently set on the receiver
"Pilot Tone"	Current pilot tone setting of the receiver ("Inactive"/"Active")



Via the "Sync Settings" submenu, you can adjust additional parameters to be transferred to the transmitters (see page 26).

To transfer the parameters:



- ▶ Switch the transmitter and the receiver on.
- ▶ Press the sync button (4) on the receiver.
"Sync" appears on the display panel of the receiver.
- ▶ Place the infra-red interface of the transmitter (see the instruction manual of the transmitter) in front of the infra-red interface of the receiver (5).
The parameters are transferred to the transmitter. When the transfer is completed, "✓" appears on the display panel. The receiver then switches back to the current standard display.

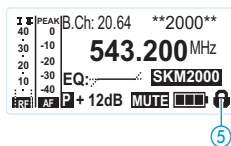
To cancel the transfer:


- ▶ Press the STANDBY button (8) on the receiver.
"X" appears on the display panel of the receiver. "X" also appears if:
 - no transmitter was found or the transmitter is not compatible,
 - no transmitter was found and the synchronization process was canceled after 30 seconds,
 - you canceled the transfer.

Deactivating the lock mode temporarily

You can activate or deactivate the automatic lock mode via the "Auto Lock" menu item (see page 22). If the lock mode is activated, you have to temporarily deactivate it in order to be able to operate the receiver:



- ▶ Press the jog dial or the STANDBY button.
"Locked" appears on the display panel.
- ▶ Turn the jog dial.
"Unlock?" appears on the display panel.
- ▶ Press the jog dial.
 - When you are in the operating menu, the lock mode remains deactivated until you exit the operating menu.
 - When one of the standard displays is shown, the lock mode is automatically activated after 10 seconds.





The lock mode icon  flashes prior to the lock mode being activated again.

Muting the audio signal


To **mute** the audio signal:



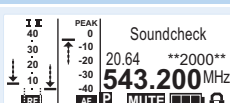
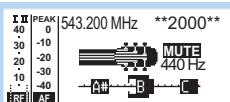
-  ▶ When one of the standard displays is shown on the display panel, press the **STANDBY** button.
"RX Mute On?" appears on the display panel.
-  ▶ Press the jog dial.
The audio signal is muted. "RX Mute" flashes in alternation with the current standard display.

To **unmute** the audio signal:

-  ▶ Press the **STANDBY** button.
"RX Mute Off?" appears on the display panel.
-  ▶ Press the jog dial.
The muting is canceled.

Selecting a standard display




-  ▶ Turn the jog dial to select a standard display:

Contents of the display	Selectable standard display
	"Receiver Parameters" appears after switch-on of the receiver and displays the receiver parameters (see page 7)
	"Transmitter Parameters" (transmitter type/microphone) displays the microphone head (SKM only) and the transmitter type. For more information, refer to the instruction manual of your SK backpack transmitter or SKM radio microphone.
	"Soundcheck" (display with additional function) displays the signal quality within the transmission area (see page 28)
	"Guitar Tuner" (display with additional function) displays the guitar tuner (see page 27)*

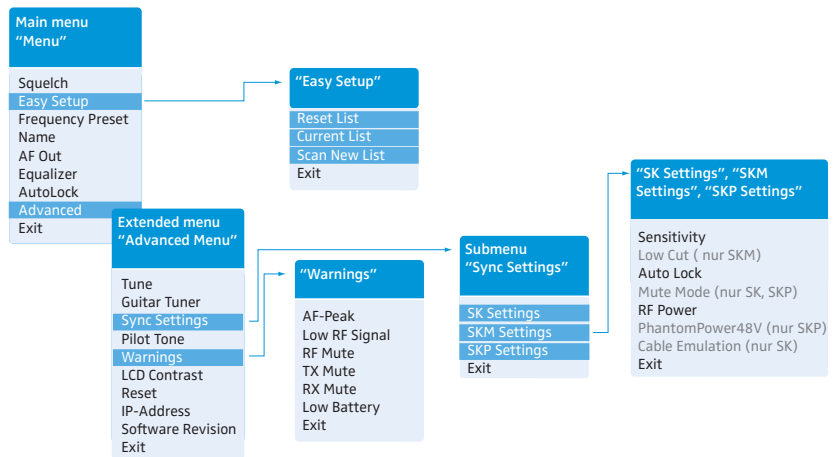
* The "Guitar Tuner" standard display is deactivated upon delivery. To show this standard display, you have to activate it (see page 24).

Using the operating menu

The buttons

Button	Function of the button
Press the STANDBY button 	<ul style="list-style-type: none"> Switches the receiver on and off Cancels the entry and returns to the current standard display (ESC function) Mutes the receiver (special function, see page 15)
Press the jog dial 	<ul style="list-style-type: none"> Changes from the current standard display to the operating menu Calls up a menu item Enters a submenu Stores the settings and returns to the operating menu
Turn the jog dial 	<ul style="list-style-type: none"> Selects a standard display (see page 15) Changes to the next/previous menu item Changes the setting of a menu item

Overview of the operating menu



When one of the standard displays is shown on the display panel, you can get into the main menu by pressing the jog dial. The extended menu **"Advanced Menu"** and the other menus can be accessed via the corresponding menu items.

Display	Function of the menu item	Page
Main menu "Menu"		
Squelch	Adjusts the squelch threshold	20
Easy Setup	Scans for unused frequency presets, releases and selects frequency presets	21
Frequency Preset	Changes the frequency bank and the channel	21
Name	Enters a freely selectable name	21
AF Out	Adjusts the audio output level	22
Equalizer	Changes the frequency response of the output signal	22
Auto Lock	Activates/deactivates the automatic lock mode	22
Advanced	Calls up the extended menu "Advanced Menu"	23
Exit	Exits the operating menu and returns to the current standard display	-
"Easy Setup"		
Reset List	Releases all locked frequency presets and selects an unused frequency preset	21
Current List	Selects an unused frequency preset	
Scan New List	Scans for unused receiving frequencies (frequency preset scan)	
Exit	Exits the submenu "Easy Setup" and returns to the main menu	
Extended menu "Advanced Menu"		
Tune	Sets the receiving frequencies for the frequency banks "U1" to "U6"	23
	Special function: Sets a channel and a receiving frequency for the frequency banks "U1" to "U6"	23
Guitar Tuner	Selects the mode of the guitar tuner function	24
Sync Settings	Activates/deactivates the parameters to be transferred to the transmitters	17
Pilot Tone	Activates/deactivates the pilot tone evaluation	24
Warnings	Activates/deactivates the warning messages	27
LCD Contrast	Adjusts the contrast of the display panel	25
Reset	Resets the receiver	25
IP-Address	Adjusts the IP address of the receiver	25
Software Revision	Displays the current software revision	26
Exit	Exits the extended menu "Advanced Menu" and returns to the main menu	-
Submenu "Sync Settings"		
SK Settings	Activates/deactivates the parameters to be transferred to SK bodypack transmitters	24
SKM Settings	Activates/deactivates the parameters to be transferred to SKM radio microphones	
SKP Settings	Activates/deactivates the parameters to be transferred to SKP plug-on transmitters	
Exit	Exits the submenu "Sync Settings" and returns to the extended menu "Advanced Menu"	

Display	Function of the menu item	Page
Submenu "SK Settings" / "SKM Settings" / "SKP Settings"		
Sensitivity	Adjusts the input sensitivity	26
Low Cut	Activates/deactivates the low cut filter ("SKM Settings" only)	
Auto Lock	Activates/deactivates the automatic lock mode	
Mute Mode	Sets the mode for the MUTE switch ("SK Settings" and "SKP Settings" only)	
RF Power	Adjusts the transmission power	
Phantom Power48V	Activates/deactivates the phantom powering ("SKP Settings" only)	
Cable Emulation	Emulates guitar cable capacities ("SK Settings" only)	
Exit	Exits the submenu and returns to the submenu "Sync Settings"	

Submenu "Warnings"

Activates/deactivates warnings (color change and warning messages):

AF-Peak	Audio overmodulation	27
Low RF Signal	RF signal is weak	
RF Mute	RF signal is too weak or no RF signal	
TX Mute	<ul style="list-style-type: none"> Transmitter is muted or no pilot tone 	
RX Mute	Receiver is muted	
Low Battery	Charge status of the transmitter battery/the BA 2015 accupack is critical	
Exit	Exits the submenu "Warnings" and returns to the extended menu "Advanced Menu"	

Working with the operating menu



If the lock mode is activated, you have to deactivate it in order to be able to work with the operating menu (see page 14).

Menu

Squelch
Easy Setup
Frequency Preset
Name
AF Out
Equalizer
Auto Lock
Advanced
Exit

By way of example of the "Frequency Preset" menu, this section describes how to use the operating menu.

Changing from the current standard display to the operating menu

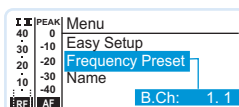


Press the jog dial.
The current standard display is replaced by the main menu. The last selected menu item is displayed.

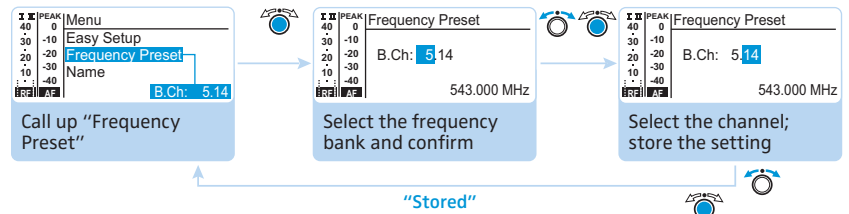
Selecting a menu item








Turn the jog dial to change to the "Frequency Preset" menu item.
The current setting of the selected menu item is displayed:




Changing and storing settings




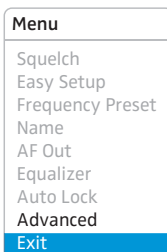
-  Press the jog dial to call up the menu item.
-  Turn the jog dial to set the frequency bank.
-  Press the jog dial to confirm your selection.
-  Turn the jog dial to set the channel.
-  Press the jog dial to store the setting.

Canceling an entry

-  Press the **STANDBY** button to cancel the entry.
The current standard display appears on the display panel.



To return to the last edited menu item:

-  Press the jog dial repeatedly until the last edited menu item appears.




Exiting a menu item

To return to the next higher menu level:

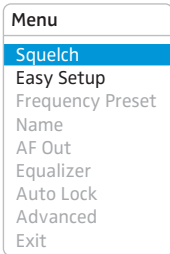
-  Change to the "Exit" menu item.
-  Confirm your selection.

To directly return to the current standard display:

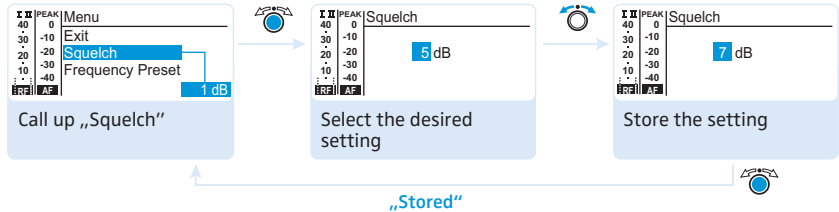
-  Press the **STANDBY** button.

Adjusting settings via the operating menu

The main menu "Menu"



Adjusting the squelch threshold



The squelch eliminates annoying noise when the transmitter is switched off or when there is no longer sufficient transmitter power received by the receiver.

CAUTION!



Danger of hearing damage and material damage!

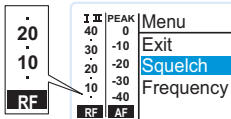
If you switch the squelch off or adjust the squelch threshold to a very low value, loud hissing noise can occur in the receiver. The hissing noise can be loud enough to cause hearing damage or overload the loudspeakers of your system!

- ▶ Always make sure that the squelch is switched on.
- ▶ Before adjusting the squelch threshold, set the volume of the headphone output (see page 13) and the audio output level to the minimum ("AF Out", see page 22).
- ▶ Never change the squelch threshold during a live transmission.
- ▶ Adjust the squelch threshold – with the transmitter switched off – to the lowest possible setting that suppresses hissing noise.

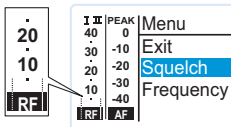
Adjustment range: 5 to 25 dB μ V, adjustable in 2-dB steps, can be switched off.



If the squelch threshold is adjusted too high, the transmission range will be reduced.



The squelch should only be switched off for servicing purposes. You can switch the squelch off by turning the jog dial at the 5 dB setting to the left and keeping it in this position for 3 seconds. The dotted lines go off and the audio level display "AF" shows full deflection.



If you have accidentally switched off the squelch:

- ▶ Turn the jog dial to the right to switch the squelch on.

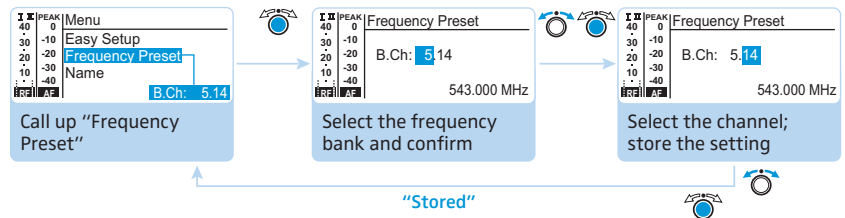
Menu
Squelch
Easy Setup
Frequency Preset
Name
AF Out
Equalizer
Auto Lock
Advanced
Exit

Scanning for, releasing and selecting frequency presets

Menu item	Function of the menu item
Reset List	Releases all locked frequency presets and selects an unused frequency preset
Current List	Selects an unused frequency preset
Scan New List	Automatically scans for unused receiving frequencies (frequency preset scan) If receiving frequencies are used, they will be locked; if receiving frequencies are unused, they will be released. After the frequency preset scan, you can select an unused frequency preset.

Menu
Squelch
Easy Setup
Frequency Preset
Name
AF Out
Equalizer
Auto Lock
Advanced
Exit

Selecting the frequency bank and the channel manually



When setting up multi-channel systems, please observe the following:

Only the factory-preset receiving frequencies within one frequency bank are inter-modulation-free (see page 29).

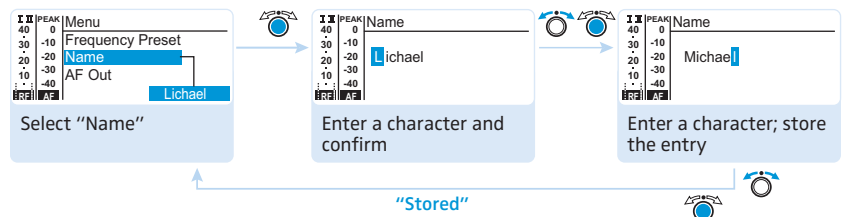
It is vital to observe the notes on frequency selection on page 29.

Overview of the frequency banks and channels:

Frequency bank	Channels	Type
"1" to "20"	up to 64 per frequency bank	System bank: frequencies are factory-preset
"U1" to "U6"	up to 64 per frequency bank	User bank: frequencies are freely selectable

Menu
Squelch
Easy Setup
Frequency Preset
Name
AF Out
Equalizer
Auto Lock
Advanced
Exit

Entering a name



Via the "Name" menu, you can enter a freely selectable name (e.g. the name of the performer) for the receiver. The name can be displayed on all standard displays (except "Transmitter Parameters") (see page 15). The name can consist of up to 8 characters such as:

- letters (without pronunciation marks),
- numbers from 0 to 9,
- special characters and spaces.

To enter a name, proceed as follows:



▶ Turn the jog dial to select a character.



▶ Press the jog dial to change to the next segment/character or to store the complete entry.

Menu
Squelch
Easy Setup
Frequency Preset
Name
AF Out
Equalizer
Auto Lock
Advanced
Exit

Adjusting the audio output level

Adjustment range: -24 dB to +24 dB, adjustable in 1-dB steps.

Via the “AF Out” menu item, you can adjust the level of the audio output “AF OUT” from the receiver to the input of the connected device. The following figures are a guide to the best settings:

Connection to ...	Guide values for AF OUT
... line input	0 to +18 dB (+24 dB)
... microphone input	-25 dB to -6 dB

Gain values greater than +18 dB should only be used when the audio modulation from the transmitter is at a low level, otherwise the audio output of the receiver may become clipped and distorted.

To adjust a gain greater than +18 dB (gain reserve):

- ▶ Adjust a level of +18 dB.
- ▶ Turn the jog dial to the right and keep it in this position for 3 seconds.
The next higher value (+19 dB) appears.
The audio output level **AF OUT** is increased.

Menu
Squelch
Easy Setup
Frequency Preset
Name
AF Out
Equalizer
Auto Lock
Advanced
Exit

Using the equalizer

Via the “Equalizer” menu item, you can change the treble and bass of the audio output signal:

“Flat” (output signal remains unchanged)	“Low cut” (cuts the bass)	“Low Cut + High Boost” (cuts the bass and boosts the treble)	“High Boost” (boosts the treble)

Menu
Squelch
Easy Setup
Frequency Preset
Name
AF Out
Equalizer
Auto Lock
Advanced
Exit

Activating/deactivating the automatic lock mode

The lock mode prevents that the receiver is accidentally switched off or programmed during operation.

The lock mode icon on the current standard display indicates that the lock mode is activated. For information on how to use the lock mode, refer page 14.

Menu
Squelch
Easy Setup
Frequency Preset
Name
AF Out
Equalizer
Auto Lock
Advanced
Exit

Getting into the extended menu "Advanced Menu"

To get into the extended menu "Advanced Menu" (see page 23):

- ▶ From the main menu, select "Advanced".

The extended menu "Advanced Menu"

Advanced Menu
Tune
Guitar Tuner
Sync Settings
Pilot Tone
Warnings
LCD Contrast
Factory Reset
IP-Address
Software Revision
Exit

Setting the receiving frequencies and the frequency banks "U1" to "U6"



When you have selected one of the system banks and then select the "Tune" menu, the receiver automatically switches to channel 1 of the frequency bank "U1". In this case, "U1.1" briefly appears on the display panel.

Upon delivery, the channels of the frequency banks "U1" to "U6" are not assigned a receiving frequency.

Via the "Tune" menu item, you can set a receiving frequency to be stored in the current channel or you can select a different channel and assign it a receiving frequency.

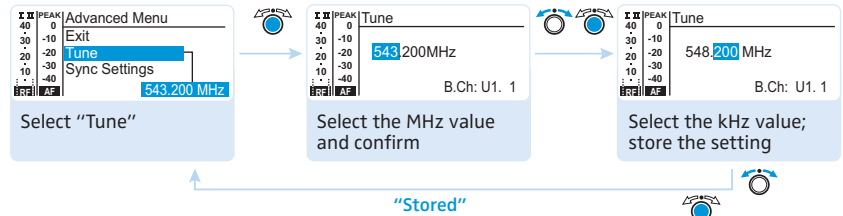
Setting a receiving frequency for the current channel



- ▶ Turn the jog dial until the "Tune" menu item appears.



- ▶ Press the jog dial.
The frequency selection appears.



It is vital to observe the notes on frequency selection on page 29.

- ▶ Set the desired frequency.
- ▶ Press the jog dial.
Your settings are stored. The "Tune" menu item appears.

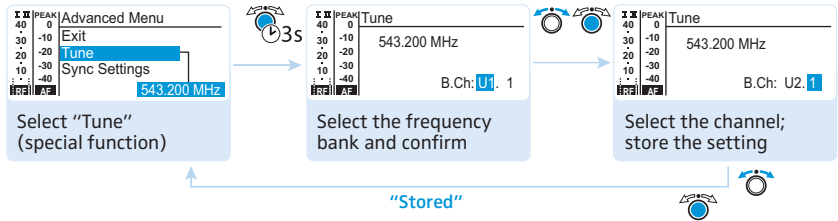


- ▶ Turn the jog dial until the "Tune" menu item appears.



- ▶ Keep the jog dial pressed until the frequency bank selection appears.

Selecting a channel and assigning this channel a frequency



- ▶ Set the desired frequency bank.
- ▶ Set the desired channel.
- ▶ Set the desired frequency.

Advanced Menu
Tune
Guitar Tuner
Sync Settings
Pilot Tone
Warnings
LCD Contrast
Reset
IP-Address
Software Revision
Exit

Changing the settings of the guitar tuner

The following settings are available:

Setting	Meaning
"Active"	When selecting the "Guitar Tuner" standard display (see page 15), the receiver is not muted.
"Inactive"	The "Guitar Tuner" standard display is deactivated.
"Audio Mute"	When selecting the "Guitar Tuner" standard display (see page 15), the receiver is muted.

Advanced Menu
Tune
Guitar Tuner
Sync Settings
Pilot Tone
Warnings
LCD Contrast
Reset
IP-Address
Software Revision
Exit

Getting into the "Sync Settings" submenu

To get into the "Sync Settings" submenu (see page 26):

- ▶ From the extended menu "Advanced Menu", select "Sync Settings".

Advanced Menu
Tune
Guitar Tuner
Sync Settings
Pilot Tone
Warnings
LCD Contrast
Reset
IP-Address
Software Revision
Exit

Activating/deactivating the pilot tone evaluation

The pilot tone supports the receiver's squelch function and protects against interference due to RF signals from other devices. The transmitter adds an inaudible pilot tone to the transmitted signal. The receiver detects and evaluates the pilot tone, and is thus able to identify the signal of the matching transmitter and mute all others.

If the pilot tone evaluation is activated, a "P" is displayed on the receiver display. If the "P" is displayed inverted, the pilot tone transmission of the matching transmitter is activated.

Advanced Menu
Tune
Guitar Tuner
Sync Settings
Pilot Tone
Warnings
LCD Contrast
Reset
IP-Address
Software Revision
Exit

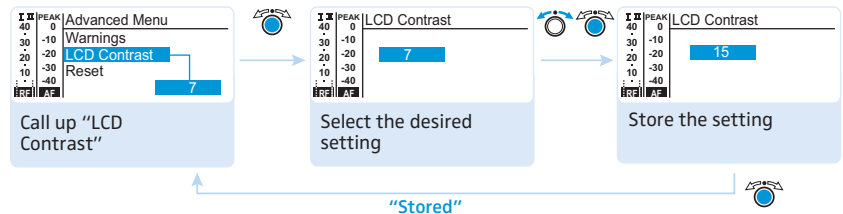
Getting into the "Warnings" submenu

To get into the "Warnings" submenu (see page 27):

- ▶ From the extended menu "Advanced Menu", select "Warnings".

Advanced Menu
Tune
Guitar Tuner
Sync Settings
Pilot Tone
Warnings
LCD Contrast
Reset
IP-Address
Software Revision
Exit

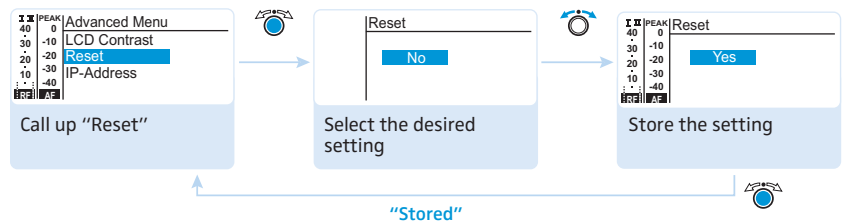
Adjusting the contrast of the display panel



You can adjust the contrast of the display panel in 16 steps.

Advanced Menu
Tune
Guitar Tuner
Sync Settings
Pilot Tone
Warnings
LCD Contrast
Reset
IP-Address
Software Revision
Exit

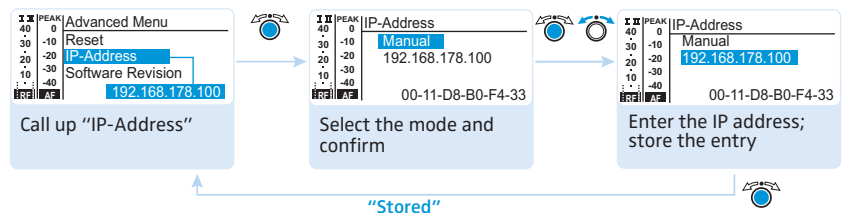
Loading the factory-preset default settings



When resetting the receiver, only the selected settings for the pilot tone and for the frequency banks "U1" to "U6" remain unchanged.

Advanced Menu
Tune
Guitar Tuner
Sync Settings
Pilot Tone
Warnings
LCD Contrast
Reset
IP-Address
Software Revision
Exit

Adjusting the network configuration



You can either automatically allocate or manually enter an IP address. This menu item also shows the receiver's unique and unchangeable MAC address.

In order to ensure safe communication between receivers in multi-channel systems (see page 29), we recommend using automatic allocation of IP addresses.

Advanced Menu

- Tune
- Guitar Tuner
- Sync Settings
- Pilot Tone
- Warnings
- LCD Contrast
- Reset
- IP-Address
- Software Revision**
- Exit

Displaying the software revision

You can display the current software revision of the receiver.

- ▶ For information on software updates, visit the corresponding product page on our website at www.sennheiser.com.

The “Sync-Settings” submenu

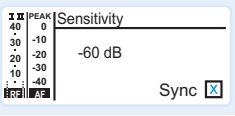
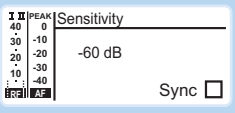
Display	Function
SK Settings	Calls up the “SK Settings” submenu
SKM Settings	Calls up the “SKM Settings” submenu
SKP Settings	Calls up the “SKP Settings” submenu
Exit	Exits the “Sync Settings” submenu and returns to the extended menu “Advanced Menu”

Sync Settings

- SK Settings
- SKM Settings
- SKP Settings**
- Exit

“SK Settings”, “SKM Settings” and “SKP Settings”

Via the “SK Settings”, “SKM Settings” and “SKP Settings” submenus, you can set the transmitter parameters directly on the receiver and activate or deactivate the transfer of these parameters to the transmitter:

Setting	Transfer is ...
	... activated
	... deactivated

By pressing the **sync** button **4**, you can transfer the parameters to the transmitters (see page 14).

Display	Function	Settings
Sensitivity	Adjusts the input sensitivity:	
	SK	–60 dB to 0 dB, adjustable in steps of 3 dB
	SKM and SKP	–48 dB to 0 dB, adjustable in steps of 6 dB
Low Cut (SKM only)	Low cut filter	can be activated/deactivated
Auto Lock	Lock mode	Inactive, Active
Mute Mode (SK, SKP only)	Mute mode	Disabled, RF On/Off, AF On/Off
RF Power	Transmission power	Low, Standard, High

Display	Function	Settings
PhantomPower48V (SKP only)	Phantom powering	Active, inactive
Cable Emulation (SK only)	Emulates guitar cable capacities	Minimum, Low, Medium, High

The “Warnings” submenu

Warnings
AF Peak
Low RF Signal
RF Mute
TX Mute
RX Mute
Low Battery
Exit

Activating/deactivating warning messages

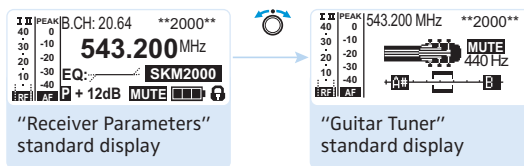
Setting	Warning message with color change on the standard display	Trigger
AF-PEAK	“AF-PEAK”	Audio overmodulation
Low RF-Signal	“Low RF-Signal”	RF signal is weak
RF-Mute	“RF-Mute”	RF signal is too weak or no RF signal
TX-Mute	“TX-Mute”	Transmitter is muted or no pilot tone
RX-Mute	“RX-Mute”	Receiver is muted
Low Battery	“Low Battery”	Charge status of the transmitter battery / the BA 2015 accupack is critical

Standard displays with additional functions

The standard displays “Guitar Tuner” and “Soundcheck” provide additional functions that can be accessed without having to get into the operating menu.

Tuning a guitar (for SK transmitters only)

- ▶ Activate the “Guitar Tuner” standard display via the operating menu (see page 24).
- ▶ Connect a guitar to your SK transmitter.
- ▶ On the receiver, change to the “Guitar Tuner” standard display (see page 15).

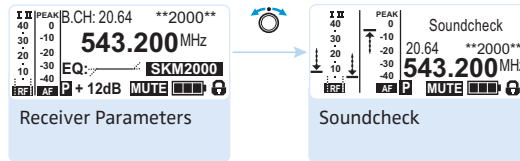


- ▶ Tune your guitar.
The receiver automatically recognizes the pitch of the plucked string.

Doing a soundcheck

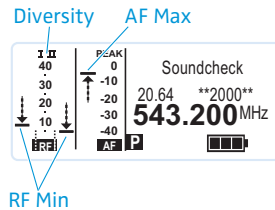
By doing a soundcheck, you can check the reception area for field strength gaps (“dropouts”) which cannot be compensated for by the receiver’s diversity circuitry. You can do the soundcheck without the help of another person.

- ▶ Switch the transmitter on.
- ▶ On the receiver, change to the “Soundcheck” standard display.



If no transmitter is being received or if the signal is below the squelch threshold level, “MUTE” appears.

- ▶ With the transmitter, walk up and down the transmission area. The receiver records the following parameters and displays them on the “Soundcheck” standard display:



Display	Meaning	What to do ...
RF Min	Min. RF signal level: must be well above the squelch threshold level for one of the two antennas	<ul style="list-style-type: none"> ▶ Check if the antennas and the antenna cables are correctly connected. ▶ Improve the position of the antennas.
RF Max	Max. RF signal level: both antennas should reach 40 dB	<ul style="list-style-type: none"> ▶ If necessary, use antenna boosters.
AF Max	Max. audio level	<ul style="list-style-type: none"> ▶ On your transmitter, adjust the audio level as high as possible (max. 0 dB) without the level display for audio level showing full deflection (AF Max is at a level with the PEAK display). For more information, refer to the instruction manual of the transmitter.

Synchronizing a transmitter with the receiver

When synchronizing a transmitter with a receiver, please observe the following:

- ▶ Only use a transmitter and a receiver from the same frequency range (see the type plate on the transmitter and the receiver).
- ▶ Make sure that the desired frequencies are listed in the enclosed frequency information sheet.
- ▶ Make sure that the desired frequencies are approved and legal in your country and, if necessary, apply for an operating license.

Synchronizing a transmitter with the receiver – individual operation

Upon delivery, transmitter and receiver are synchronized with each other. However, if you cannot establish a transmission link between transmitter and receiver, you have to synchronize the channels of the devices:

- ▶ With the receiver, perform a frequency preset scan to scan the frequency banks for unused channels (“[Scan New List](#)”, see page 21).
- ▶ Select a channel on your receiver (“[Current List](#)”, see page 21).
The receiving frequency of the channel must be approved and legal in your country (see above).
- ▶ Synchronize a transmitter with the receiver via the infra-red interface (see page 14).
This establishes a transmission link between the transmitter and the receiver.

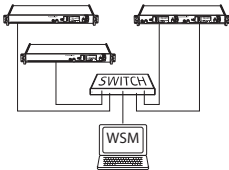
Alternatively, you can set the channel on the transmitter manually:

- ▶ Make sure that you set the transmitter to the same frequency bank and the same channel as the receiver.
For information on the setting options of the transmitter, refer to the instruction manual of the transmitter.

Synchronizing transmitters with receivers – multi-channel operation

Network operation

In multi-channel operation, the receivers are remote controlled via a PC running the “[Wireless Systems Manager](#)” (WSM) software.



Advantages of controlling the receivers via the “[Wireless Systems Manager](#)” (WSM) software:

- Detailed overview of all receiving channels
- Remote control of all receivers in the network
- Combination of receivers of different frequency ranges (see page 4).

- ▶ Connect the receivers in a network (see page 12).
- ▶ Launch the “[Wireless Systems Manager](#)” (WSM) software.
- ▶ To scan for unused receiving frequencies and to configure the receivers, proceed as described in the instruction manual of the “[Wireless Systems Manager](#)” (WSM) software.
- ▶ Set the corresponding transmitter to the selected frequency bank and to the selected channel either by synchronizing the transmitter with the receiver (see page 14) or by setting the frequency bank and the channel manually (see the instruction manual of the transmitter).
Your multi-channel system is now set up.

- Operation without network**
- ▶ Switch off all transmitters of your system that are to be automatically configured. Channels used by switched-on transmitters are displayed as “used”.
 - ▶ With one of the receivers, perform a frequency preset scan to scan the frequency banks for unused channels (“[Scan New List](#)”, see page 21).
 - ▶ Select a channel on this receiver (“[Current List](#)”, see page 21). The receiving frequency of the channel must be approved and legal in your country (see above).
 - ▶ Synchronize a transmitter with the receiver via the infra-red interface (see page 14). This establishes a transmission link between the transmitter and the receiver.
 - ▶ Repeat for the remaining transmitter and receiver pairs as described above.

Alternatively, you can set the channel on the transmitter manually:

- ▶ Make sure that you set the transmitter to the same frequency bank and the same channel as the receiver.
For information on the setting options of the transmitter, refer to the instruction manual of the transmitter.

Cleaning the receiver

CAUTION!

Liquids can damage the electronics of the receiver!

Liquids entering the housing of the device can cause a short-circuit and damage the electronics.

▶ Keep all liquids away from the receiver.

▶ Before cleaning, disconnect the device from the mains.

▶ Use a slightly damp cloth to clean the receiver from time to time. Do not use any solvents or cleansing agents.

If a problem occurs ...

Problem	Possible cause	Possible solution
Receiver cannot be operated, "Locked" appears on the display panel	Lock mode is activated	Deactivate the lock mode (see page 14).
No operation indication	No mains connection	Check the connections of the mains unit.
No RF signal	Transmitter and receiver are not on the same channel	Set the transmitter and receiver to the same channel. To do so, use the synchronization function (see page 14).
	Transmitter is out of range	Check the squelch threshold setting (see page 17). Reduce the distance between transmitter and receiving antennas.
RF signal available, no audio signal, "MUTE" appears on the display panel	If "TX Mute" additionally appears on the display panel: transmitter is muted ("MUTE") or transmitter doesn't transmit a pilot tone	Cancel the muting (see page 15).
		Switch the pilot tone transmission on the transmitter on (see page 24). Switch the pilot tone evaluation on the receiver off (see page 17).
Audio signal has a high level of background noise	Receiver's squelch threshold is adjusted too high	Reduce the squelch threshold (see page 17). Reposition the antennas.
		Adjust the transmitter sensitivity correctly.
Audio signal is distorted	Transmitter sensitivity is adjusted too low/high	Adjust the transmitter sensitivity correctly.
	Receiver's audio output level is adjusted too high	Reduce the audio output level ("AF Out", see page 17).
No access to a certain channel	During scanning, an RF signal has been detected on this channel and the channel has been locked	Set the transmitter operating on this channel to a different channel and redo the frequency preset scan (see page 17).
	During scanning, a transmitter of your system operating on this channel has not been switched off	Switch the transmitter off and redo the frequency preset scan (see page 17).

Problem	Possible cause	Possible solution
None of the diversity displays I or II appears on the display panel	Receiver's squelch threshold is adjusted too high	Reduce the squelch threshold (see page 16).
	Transmitter's RF signal is too weak	Increase the transmission power of the transmitter. Reduce the distance between transmitter and receiver.
During the soundcheck, only one diversity display (I or II) appears on the display panel	One of the antennas is not correctly connected	Check the antenna cables or the antennas.
	Antennas are not optimally positioned	Reposition the antennas.

If a problem occurs that is not listed in the above table or if the problem cannot be solved with the proposed solutions, please contact your local Sennheiser partner for assistance.

To find a Sennheiser partner in your country, search at www.sennheiser.com under "Service & Support".

Accessories

Cat. No. Accessories

009912 AM 2 antenna front mount kit

Antennas

502195 A 3700 antenna, active broadband antenna, omni-directional

502197 AD 3700 antenna, active broadband antenna, directional

Antenna booster

502196 AB 3700

Cables

087969 Antenna daisy-chain cable, 50 Ω , BNC, 0.25 m

002324 GZL 1019-A1 coaxial cable, type RG 58, BNC to BNC, 1 m

002325 GZL 1019-A5 coaxial cable, type RG 58, BNC to BNC, 5 m

002326 GZL 1019-A10 coaxial cable, type RG 58, BNC to BNC, 10 m

Specifications

RF characteristics

Modulation	wideband FM
Receiving frequency ranges	516–558, 558–626, 626–698, 718–790, 790–865 MHz (Aw to Dw, Gw, see page 4)
Receiving frequencies	up to 3,000 receiving frequencies, tuneable in steps of 25 kHz 20 frequency banks, each with up to 64 factory-preset channels, intermodulation-free 6 frequency banks, each with up to 64 user programmable channels
Switching bandwidth	up to 75 MHz
Nominal/peak deviation	± 24 kHz/ ± 48 kHz
Receiver principle	true diversity
Sensitivity (with HDX, peak deviation)	≤ 2 μ V for 52 dBA _{rms S/N}
Adjacent channel rejection	typ. ≥ 80 dB
Intermodulation attenuation	typ. ≥ 75 dB
Blocking	≥ 80 dB
Squelch	Off, 5 to 25 dB μ V in steps of 2 dB
Pilot tone squelch	can be switched off
Antenna inputs	2 BNC sockets with booster supply voltage (11 VdB, 200 mA, cannot be switched off)
Antenna outputs	2 BNC sockets



AF characteristics

Compander system	Sennheiser HDX
EQ presets	(switchable, affect the line and monitor outputs)
Preset 1: "Flat"	–
Preset 2: "Low Cut"	–3 dB at 200 Hz
Preset 3: "Low Cut/High Boost"	–3 dB at 200 Hz +5.5 dB at 10 kHz
Preset 4: "High Boost"	+5.5 dB at 10 kHz
S/N ratio (1 mV, peak deviation)	≥ 120 dBA
THD	$\leq 0.9\%$
AF output voltage	$\frac{1}{4}$ " (6.3 mm) jack socket (transformer balanced): +18 dBu
(at peak deviation, 1 kHz AF)	XLR-3M socket (transformer balanced): +18 dBu
Adjustment range of audio output level	49 dB (in steps of 1 dB), +6 dB gain reserve

Overall device

Temperature range	–10°C to +55°C
Power supply	100–240 V~
Current consumption	EM 2000: 0.2 A EM 2050: 0.25 A
Dimensions	approx. 217 x 483 x 43 mm
Weight	EM 2000: approx. 2600 g EM 2050: approx. 2900 g

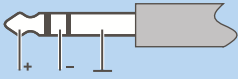
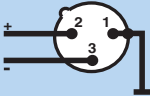
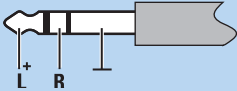
In compliance with

Europe		EMC	EN 301489-1/-9
		Radio	EN 300422-1/-2
		Safety	EN 60065
USA		47 CFR 15 subpart B	

Approved by

Canada	Industry Canada	RSS 210, IC: 2099A-EM20X0
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Connector assignment

Audio		
1/4" (6.3 mm) stereo jack plug, transformer balanced	XLR-3F connector, transformer balanced	1/4" (6.3 mm) stereo jack plug for headphone output
		

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 web site at www.sennheiser.com or contact your Sennheiser partner.

In compliance with the following requirements

- RoHS Directive (2002/95/EU)
- WEEE Directive (2002/96/EU)



Please dispose of the receiver at the end of its operational lifetime by taking it to your local collection point or recycling center for such equipment.

CE Declaration of Conformity

- **CE 0682**
- R&TTE Directive (1999/5/EU), Low Voltage Directive (2006/95/EU)

The declarations are available at www.sennheiser.com.

Before putting the device into operation, please observe the respective country-specific regulations.

Statements regarding FCC and Industry Canada

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. 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.

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.

This class B digital device complies with the Canadian ICES-003.

Changes or modifications made to this equipment not expressly approved by Sennheiser electronic Corp. may void the FCC authorization to operate this equipment.

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

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www.sennheiser.com

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