SENNHEISER

SK 2000

Instruction manual

Contents

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

Important safety instructions

- Read this instruction manual.
- Keep this instruction manual. Always include this instruction manual when passing the product on to third parties.
- Heed all warnings and follow all instructions in this instruction manual.
- Use only a cloth for cleaning the product.
- Do not place the product near any heat sources such as radiators, stoves, or other devices (including amplifiers) that produce heat.
- Only use attachments/accessories specified by Sennheiser.
- Refer all servicing to qualified service personnel.
  Servicing is required if the product has been damaged in any way, liquid has been spilled, objects have fallen inside, the product has been exposed to rain or moisture, does not operate properly or has been dropped.
- WARNING: To reduce the risk of short circuits, do not use the product near water and do not expose it to rain or moisture.

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.

Intended use

Intended use of the SK 2000 bodypack transmitter includes:

- having read these instructions especially the chapter ''Important safety instructions'',
- using the product within the operating conditions and limitations described in this instruction manual.

''Improper use'' means using the product other than as described in this instruction manual, or under operating conditions which differ from those described herein.

The SK 2000 bodypack transmitter

This bodypack transmitter 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.
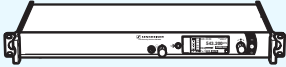
Features of the 2000 series:

- Optimized PLL synthesizer and microprocessor technology
- HDX noise reduction system
- Pilot tone squelch control
- True diversity technology
- Switching bandwidth of up to 75 MHz
- Increased immunity to intermodulation and interferences in multi-channel operation

Areas of application

The bodypack transmitter can be combined with the EM 2000 and EM 2050 rack-mount receivers. The receivers 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.

Transmitter	Optional accessories	Receivers
SK 2000	• Clip-on microphones*: MKE 1, ME 102, ME 104, ME 105	EM 2000 receiver
	• Headmics*: HSP 2, HSP 4	
	• Instrumente cable: CI 1-4*	EM 2050 twin receiver
* each fitted with a 3-pin special audio connector		

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Overview of the microphones and instrument cables:

Microphone/instrument cable	Type	Pick-up pattern
MKE 1 clip-on microphone		omni-directional
ME 102 clip-on microphone		cardioid
ME 104 clip-on microphone	condenser	cardioid
ME 105 clip-on microphone		super-cardioid
HSP 2 headmic		omni-directional
HSP 4 headmic		cardioid
CI 1-4 instrument cable	–	–

The frequency bank system

The bodypack transmitter is available in 5 UHF frequency ranges with up to 3,000 transmission frequencies per frequency range:

Range Aw: 516 – 558	Range Gw: 558 – 626	Range Bw: 626 – 698	Range Cw: 718 – 790	Range Dw: 790 – 865

500   600   700   800   MHz
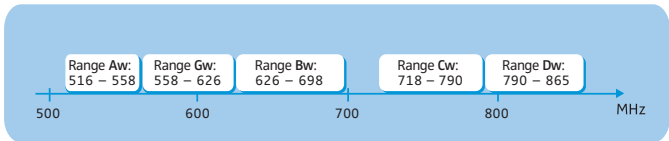
Each frequency range (Aw-Dw, Gw) offers 26 frequency banks with up to 64 channels each:

Channel **1** – frequency preset
Channel **2** – frequency preset
Frequency bank **1 … 20**
Channel **64** – frequency preset

Channel **1** – freely selectable frequency
Channel **2** – freely selectable frequency
Frequency bank **U1 … U6**
Channel **64** – freely selectable frequency

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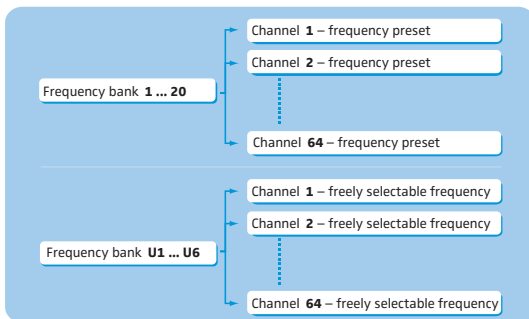
Each of the channels in the frequency banks "1" to "20" has been factory-preset to a fixed frequency (frequency preset). The factory-preset frequencies within one frequency bank are intermodulation-free. These frequencies cannot be changed.

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 SK 2000 product page on our website at www.sennheiser.com.

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

Delivery includes

The packaging contains the following items:

1 SK 2000 bodypack transmitter

2 AA size batteries, 1.5 V

1 instruction manual

1 frequency information sheet

1 RF power information sheet

Product overview

Overview of the SK 2000 bodypack transmitter
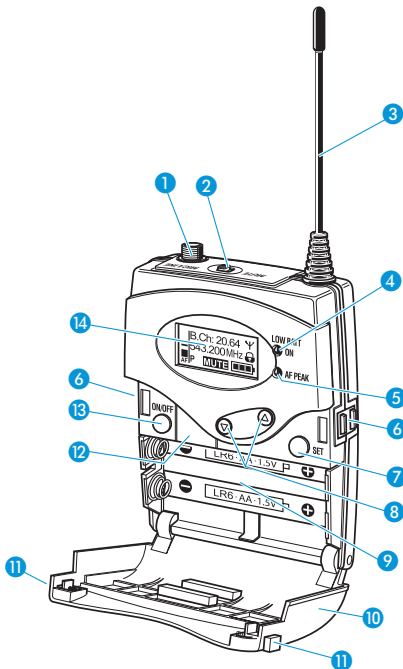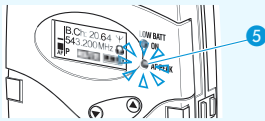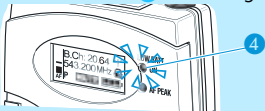
1. Microphone/instrument input (MIC/LINE), 3-pole special audio socket, lockable
2. MUTE switch
3. Antenna
4. Operation and battery status indicator, red LED:
   lit = ON
   flashing = LOW BATT
5. Audio overmodulation indicator, yellow LED:
   lit = AF PEAK
6. Charging contacts
7. SET button
8. ▲/▼ rocker button (UP/DOWN)
9. Battery compartment
10. Battery compartment cover (metal)
11. Battery compartment catches
12. Infra-red interface
13. ON/OFF button with ESC function (cancel)
14. Display panel, backlit in orange

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Overview of the displays

After switch-on, the bodypack transmitter displays the "Frequency/ Name" standard display. For further illustrations and examples of the different standard displays, refer to page 15. The display backlighting is automatically reduced after approx. 20 seconds.

Display	Meaning
① Audio level "AF"	Modulation of the bodypack transmitter with peak hold function
	When the audio input level is excessively high, the "AF" display shows full deflection and, in addition, the yellow AF PEAK LED ⑤ lights up:
② Frequency	Current transmission frequency
③ Name	Freely selectable name of the transmitter
④ Transmission icon	RF signal is being transmitted
⑤ Lock mode icon	Lock mode is activated
⑥ "P" (pilot tone)	Pilot tone transmission is activated
⑦ "MUTE"	Microphone or line input is muted
⑧ Battery status	Charge status:
	approx. 100%
	approx. 70%
	approx. 30%
	charge status is critical, the red LOW BATT LED ④ is flashing:

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Putting the bodypack transmitter into operation

Inserting the batteries/accupack

For powering the bodypack transmitter, you can either use two 1.5 V AA size batteries or the rechargeable Sennheiser BA 2015 accupack (see ''Accessories'' on page 33).

▶ Open the battery compartment by pushing the two catches ⑪ in the direction of the arrows and open the cover ⑩.
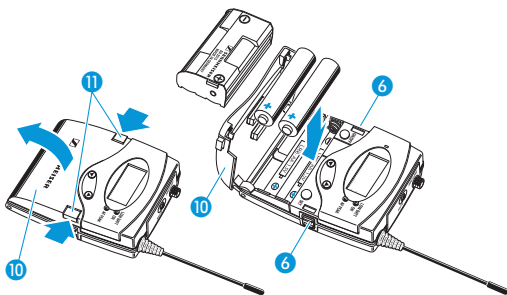
▶ Insert the two batteries or the accupack as shown above. Please observe correct polarity when inserting the batteries/accupack.

▶ Close the battery compartment.
The battery compartment cover ⑩ locks into place with an audible click.

Charging the accupack

To charge the bodypack transmitter with the BA 2015 accupack (see ''Accessories'' on page 33) installed:

▶ Insert the bodypack transmitter into the L 2015 charger (see ''Accessories'' on page 33).

> ℹ️ The L 2015 charger can only charge the combination BA 2015 accupack/bodypack transmitter. Standard batteries (primary cells) or individual rechargeable battery cells cannot be charged.

Connecting the microphone cable/instrument cable

The audio input is designed for the connection of both condenser micro-
phones and instruments (e.g. guitars). DC powering of the condenser
microphones is via the audio input MIC/LINE ❶ (3-pole special audio
socket).

▶ Use one of the recommended Sennheiser microphones or the CI 1-4
instrument cable (see ''Accessories'' on page 33).

▶ Connect the 3-pin special audio connector ⓰ from the Sennheiser
microphone or instrument cable to the socket MIC/LINE ❶.
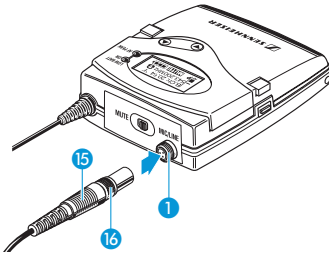
▶ Lock the 3-pin special audio connector by screwing down the coupling
ring ⓰.

▶ Via the operating menu, adjust the sensitivity of the microphone/line
input (see page 20).

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Attaching the bodypack transmitter to clothing

You can use supplied bodypack pouch or the belt clip ⑱ to attach the bodypack transmitter to clothing (e.g. belt, waistband).
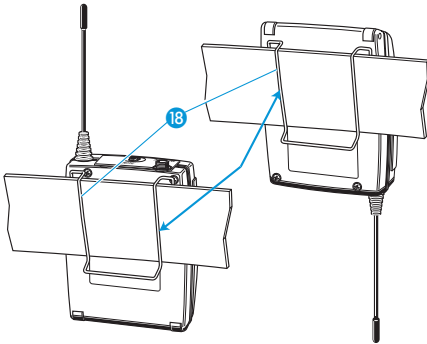
The belt clip is detachable so that you can also attach the transmitter with the antenna pointing downwards. To do so, withdraw the belt clip ⑱ from its fixing points and attach it the other way round.

The belt clip ⑱ is secured so that it cannot slide out of its fixing points accidentally.

To detach the belt clip:

▶ Lift the belt clip as shown.
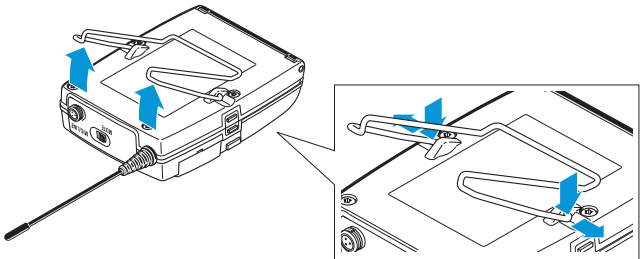
▶ Press down the belt clip at one fixing point and pull it out of the transmitter housing.
▶ Repeat for the other side.

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Using the bodypack transmitter

To establish a transmission link, proceed as follows:

1. Switch the receiver on (see the instruction manual of the receiver).

2. Switch the bodypack transmitter on (see next section).
   The transmission link is established and the display backlighting of the receiver changes from red to orange.

> ℹ It is vital to observe the notes on frequency selection on page 28.

If you cannot establish a transmission link between transmitter and receiver, read the chapter "Synchronizing the bodypack transmitter with a receiver" on page 28.

Switching the bodypack transmitter on/off

▶ Push the two battery compartment catches ⑪ and open the battery compartment cover ⑩.
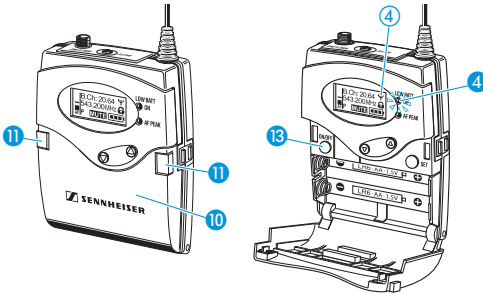
To switch the bodypack transmitter on (online operation):

ON/OFF

▶ Briefly press the ON/OFF button ⑬.
The bodypack transmitter transmits an RF signal. The "Frequency/Name" standard display appears on the display panel. The red ON LED ④ lights up and the transmission icon ④ is displayed.

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

ON/OFF

▶ Keep the ON/OFF button ⑬ pressed until "RF Mute On?" appears on the display panel.

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SET

▶ Press the SET button.
The transmission frequency is displayed but the bodypack transmitter does not transmit an RF signal. The transmission icon ④ is not displayed. When the pilot tone function is activated on both bodypack transmitter and receiver, "RF Mute" appears on the receiver's display panel.

```
 543.200 MHz
 **2000**          ④
AF P  MUTE ▮▮▮
```
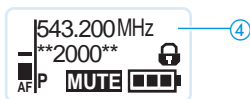
ℹ Use this function to save battery power or to prepare a bodypack transmitter for use during live operation without causing interference to existing transmission links.

To activate the RF signal:

ON/OFF

▶ Press the ON/OFF button.
"RF Mute Off" appears on the display panel.

SET

▶ Press the SET button.
The transmission icon ④ is displayed again.

To switch the bodypack transmitter off:

▶ If necessary, deactivate the lock mode (see next chapter).

ON/OFF

▶ Keep the ON/OFF button ⑬ pressed until "OFF" appears on the display panel. The red ON LED ④ goes off and the display panel turns off.

ℹ When in the operating menu, pressing the ON/OFF button ⑬ will cancel your entry (ESC function) and return you to the current standard display.

Deactivating the lock mode temporarily

You can activate or deactivate the automatic lock mode via the "Auto Lock" menu item (see page 23). If the lock mode is activated, you have to temporarily deactivate it in order to be able to operate the bodypack transmitter:

SET / ON/OFF

▶ Press the SET button or the ON/OFF button.
"Locked" appears on the display panel.

▼ ▲

▶ Press the rocker button.
"Unlock?" appears on the display panel.

SET

▶ Press the SET button.
The lock mode is temporarily deactivated.

  – 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 ⑤ flashes prior to the lock mode being activated again.

543.200MHz
2000
AF P MUTE ————————⑤

Muting the audio signal or deactivating the RF signal
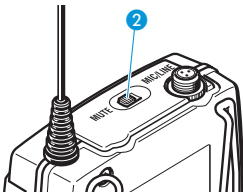
The MUTE switch ❷ allows you to mute the audio signal or to deactivate the RF signal. Via the "Mute Mode" menu item, you can set the desired function of the MUTE switch ❷ (see page 25).

Setting	Slide the MUTE switch ❷ ...	Function
"AF On/Off"	... to the left (position MUTE)	Mutes the audio signal
	... to the right	Unmutes the audio signal
"RF On/Off"	... to the left (position MUTE)	Deactivates the RF signal (offline operation)
	... to the right	Activates the RF signal (online operation)
"Disabled"	No function	

▶ From the "Mute Mode" menu item, select the desired setting (see page 25).

▶ Exit the operating menu.

▶ Slide the MUTE switch ❷ to the left, to the position MUTE.
The bodypack transmitter reacts as indicated in the table.

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The current state of the muting function or the RF signal is displayed on the display panel of the bodypack transmitter.

An additional display of the muting function appears on the receiver's display panel when

- the pilot tone function is activated on both bodypack transmitter and receiver

  and, in addition,

- this display has been activated via the "Warnings" menu item on the receiver (see the instruction manual of the receiver).

543.200MHz ↴
2000
AF P MUTE ▮▮▮

④

⑦
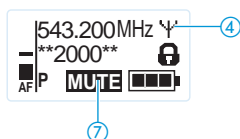
Audio signal is muted	
Transmitter's display panel:	"MUTE" ⑦ is displayed
Receiver's display panel:	"TX Mute" is displayed*

* only when activated on the receiver (see previous section)

Audio signal is activated (muting is deactivated)	
Transmitter's display panel:	"MUTE" ⑦ is not displayed
Receiver's display panel:	"TX Mute" is not displayed

RF signal is deactivated	
Transmitter's display panel:	Transmission icon ④ is not displayed, "MUTE" ⑦ is displayed
Receiver's display panel:	"RF Mute" is displayed*

* only when activated on the receiver (see previous section)

RF signal is activated	
Transmitter's display panel:	Transmission icon ④ is displayed
Receiver's display panel:	"RF Mute" is not displayed

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You can also deactivate the RF signal on switch-on. For more information, refer to the chapter ''Switching the bodypack transmitter on/off'' on page 11.

Using the ON/OFF button, you can also activate/deactivate the RF signal during operation. To do so, briefly press the ON/OFF button and proceed as described on page 12.

Selecting a standard display

▼ ▲   ▶ Press the rocker button to select a standard display:

Contents of the display	Selectable standard display
543.200 MHz Ψ **2000** 🔒 AF P MUTE 〓	"Frequency/Name"
B.Ch: 20.64 Ψ 543.200 MHz 🔒 AF P MUTE 〓	"Channel/Frequency"
2000 Ψ B.Ch: 20.64 🔒 AF P MUTE 〓	"Name/Channel"

Using the operating menu

A special feature of the Sennheiser 2000 series is the consistent, intuitive menu structure of transmitters and receivers. As a result, adjustments to the settings can be made quickly – even in stressful situations, for example on stage or during a live show or presentation.

The buttons

Button	Function of the button
Press the ON/OFF button ON/OFF	• Switches the bodypack transmitter on and off • Cancels the entry and returns to the current standard display (ESC function) • Activates/deactivates the RF signal (special function, see page 13)
Press the SET button SET	• 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
Press the rocker button ▼ ▲	• Selects a standard display • Changes to the next/previous menu item • Changes the setting of a menu item

Overview of the operating menu

Main menu "Menu"

Sensitivity
Frequency Preset
Name
Auto Lock
Advanced
Exit

Extended menu "Advanced Menu"

Tune
Mute Mode
RF Power
Cable Emulation
Pilot Tone
LCD Contrast
Reset
Software Revision
Exit
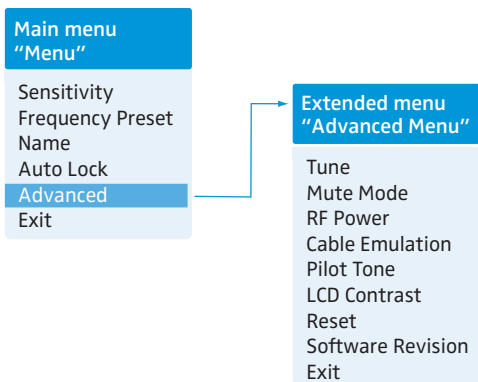
Display	Function of the menu item	Page
Main menu "Menu"		
Sensitivity	Adjusts the sensitivity "AF"	20
Frequency Preset	Sets the frequency bank and the channel	21
Name	Enters a freely selectable name	22
Auto Lock	Activates/deactivates the lock mode	23
Advanced	Calls up the extended menu "Advanced Menu"	23
Exit	Exits the operating menu and returns to the current standard display	
Extended menu "Advanced Menu"		
Tune	Sets the transmission frequencies for the frequency banks "U1" to "U6"	24
	Sets the frequency bank, the channel and the transmission frequency (frequency banks "U1" to "U6")	24
Mute Mode	Sets the mode for the MUTE switch ❷	25
RF Power	Adjusts the transmission power	25
Cable Emulation	Emulates guitar cable capacities	26
Pilot Tone	Activates/deactivates the pilot tone transmission	26
LCD Contrast	Adjusts the contrast of the display panel	26
Reset	Resets the settings made in the operating menu	27
Software Revision	Displays the current software revision	27
Exit	Exits the extended menu "Advanced Menu" and returns to the main menu	–

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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 12).

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

Changing from a standard display to the operating menu

SET ▶ Press the SET button.
The current standard display is replaced by the main menu. The last selected menu item is displayed.

Selecting a menu item

▼ ▲ ▶ Press the rocker button to change to the "Sensitivity" menu item.
The current setting of the selected menu item is displayed:

```
Menu
Sensitivity
                  –12 dB
```
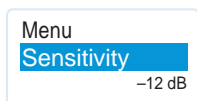
Changing and storing settings

```
Menu                SET    Sensitivity     ▲▼    Sensitivity
Sensitivity                – 12 dB               –36 dB
        –12 dB
Call up                    Select the desired    Store the setting
"Sensitivity"              setting
                                            SET
                   "Stored"
```
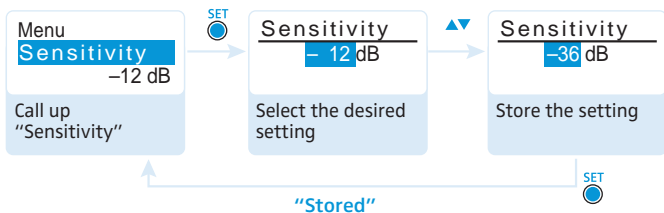
SET ▶ Press the SET button to call up the menu item.

▼ ▲ ▶ Press the rocker button to adjust the input sensitivity.

SET ▶ Press the SET button to store the setting.

Canceling an entry

ON/OFF ▶ Press the ON/OFF button to cancel the entry.
The current standard display appears on the display panel.

To subsequently return to the last edited menu item:

SET ▶ Press the SET button repeatedly until the last edited menu item appears.

Exiting a menu item

▼▲ ▶ Change to the "Exit" menu item.
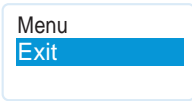
Menu
Exit

SET ▶ Confirm your selection.
You return to the next higher menu level.

To directly return to the current standard display:

ON/OFF ▶ Press the ON/OFF button.

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Adjusting settings via the operating menu

ℹ️ Make use of the possibility to adjust settings via the operating menu of your receiver and to transfer these settings to the body-pack transmitter.

For more information, refer to the instruction manual of the receiver. The relevant information is marked with the syn▷ icon.

The main menu "Menu"

Adjusting the input sensitivity – "Sensitivity"

Menu Sensitivity −12 dB	SET	Sensitivity − 12 dB	▲▼	Sensitivity −36 dB
Call up "Sensitivity"		Select the desired setting		Store the setting

"Stored" SET
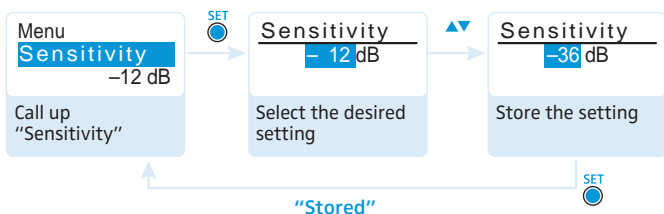
Adjustment range: 0 to −60 dB, adjustable in steps of 3 dB

ℹ️ The audio level display "AF" ① always indicates the audio level, even if the bodypack transmitter is muted, e.g. allowing you to check the adjusted sensitivity before live operation.

20
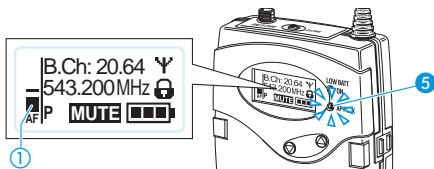
Input sensitivity is adjusted…	Effect/display
… too high	Close talking distances, speakers with loud voices or loud music passages cause overmodulation in the transmission link.
	The yellow AF PEAK LED ❺ lights up.
	The audio level display "AF" ① shows full deflection for the duration of the overmodulation.
… correctly	The audio level display "AF" ① shows full deflection only during the loudest passages.
… too low	The transmission link is undermodulated. This results in a signal with high background noise.

The following figures are a guide to the best settings:

Transmission situation	Sensitivity setting
Loud music/vocals	−30 to −21 dB
Presentations	−21 to 0 dB
Instrument input	
Electric guitars with single coil pickups	−30 to −24 dB
Electric guitars with humbucker pickups	−45 to −30 dB
Guitars with active electronics (active pickups, active EQs, piezo pickups)	−45 to −30 dB

Selecting the frequency bank and the channel manually – "Frequency Preset"

Menu Frequency Preset B.Ch: 5.14	Frequency Preset B.Ch: 5.14 792.525MHz	Frequency Preset B.Ch: 1.14 818.850MHz
Call up "Frequency Preset"	Select the frequency bank and confirm	Select the channel; store the setting

"Stored"
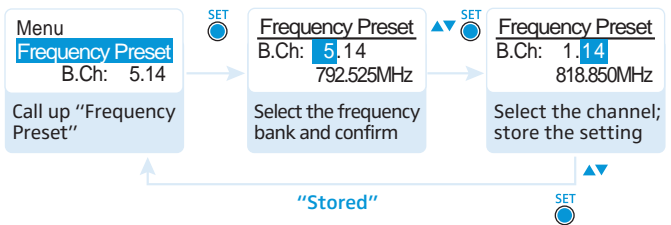
When you are in the "Frequency Preset" menu item, the RF signal is deactivated.

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

> ℹ️ **When setting up multi-channel systems, please observe the following:**
> Only the factory-preset transmission frequencies within one frequency bank ("1" to "20") are intermodulation-free. It is vital to observe the notes on frequency selection on page 28.

Entering a name – "Name"
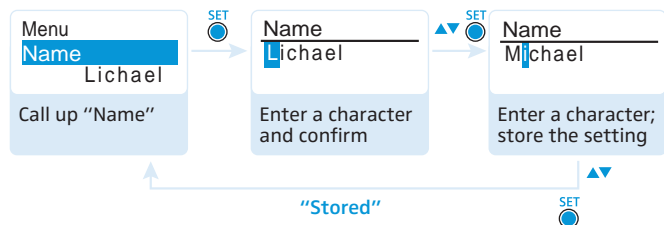
Via the "Name" menu item, you can enter a freely selectable name (e.g. the name of the performer) for the bodypack transmitter. The name can be displayed on the "Frequency/Name" and "Name/Channel" standard displays (see page 15). The name can consist of up to 8 characters such as:

• letters (without pronounciation marks),

• numbers from 0 to 9,

• special characters and spaces.

To enter a name, proceed as follows:

▼▲ ▶ Press the rocker button to select a character.

SET ◉ ▶ Press the SET button to change to the next segment/character or to store the complete entry.

Activating/deactivating the automatic lock mode – "Auto Lock"

Menu
Auto Lock
  A c t i v e
	Auto Lock
	  Active
		Auto Lock
		  Inactive

Call up "Auto Lock"	Select the desired setting	Store the setting

SET

▲▼

SET

"Stored"
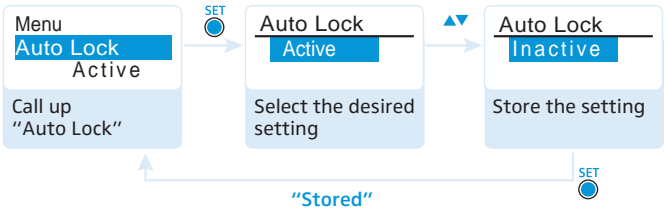
The lock mode prevents that the bodypack transmitter is accidentally switched off or programed during operation. The lock mode icon ⑤ 🔒 on the current standard display indicates that the lock mode is activated.

▼▲ ▶ Press the rocker button to select the desired setting.

For information on how to use the lock mode, refer to page 12.

The extended menu "Advanced Menu"

Setting the transmission frequencies and the frequency banks "U1" to "U6" – "Tune"

> ℹ️ When you have selected one of the system banks and then select the "Tune" menu, the bodypack transmitter 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 transmission frequency.
>
> When you are in the "Tune" menu item, the RF signal is deactivated.

Via the "Tune" menu item, you can:

1. set a transmission frequency to be stored in the current channel of the frequency bank ("U1" to "U6")

2. or select a frequency bank ("U1" to "U6") and a channel and assign this channel a transmission frequency.

> ℹ️ It is vital to observe the notes on frequency selection on page 28.

Setting a transmission frequency for the current channel

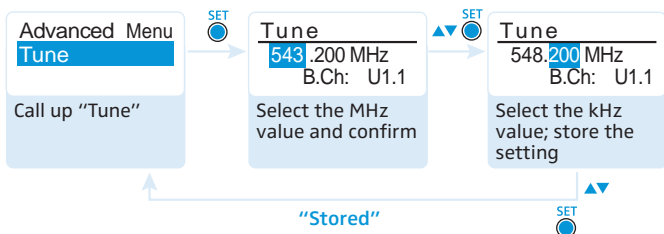▼ ▲ ▶ Press the rocker button until the "Tune" menu item appears.

SET ▶ Press the SET button.
The frequency selection appears.

Advanced Menu	Tune	Tune
Tune	543 .200 MHz	548.200 MHz
	B.Ch: U1.1	B.Ch: U1.1
Call up "Tune"	Select the MHz value and confirm	Select the kHz value; store the setting

"Stored"

▶ Set the desired frequency.

SET ▶ Press the SET button.
Your settings are stored. The "Tune" menu item appears.

Selecting a frequency bank and a channel and assigning this channel a transmission frequency

▼ ▲ ▶ Press the rocker button until the "Tune" menu item appears.

SET ▶ Press the SET button and keep it pressed until the frequency bank selection appears.

Advanced Menu	Tune	Tune
Tune	548.200MHz	548.200MHz
	B.Ch: U1. 1	B.Ch: U1. 1
Call up "Tune" (special function)	Select the frequency bank and confirm	Select the channel; store the setting

"Stored"
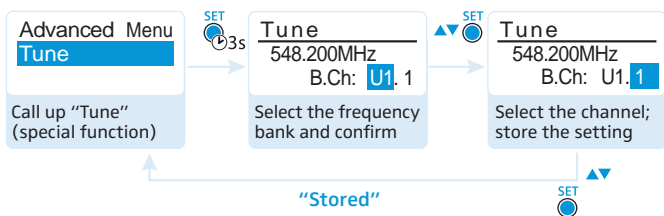
▶ Set the desired frequency bank.
▶ Set the desired channel.
▶ Set the desired frequency.

Setting the mode for the MUTE switch – "Mute Mode"

Advanced Menu	SET	Mute Mode	▲▼	Mute Mode
Mute Mode		**AF On/Off**		**RF On/Off**
Call up "Mute Mode"		Select the desired setting		Store the setting

"Stored"   SET
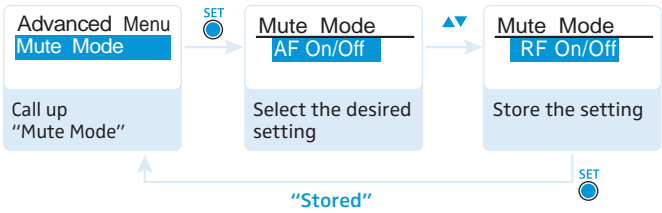
Mode	Function
"AF On/Off"	When the switch is in the MUTE position, no audio signal is transmitted.
"RF On/Off"	When the switch is in the MUTE position, the RF signal is deactivated.
"Disabled"	The muting function is deactivated.

For information on how to use the MUTE switch ❷, refer to page 13.

Adjusting the transmission power – "RF Power"

Advanced Menu	SET	RF Power	▲▼	RF Power
RF Power		**Standard**		**Low**
Call up "RF Power"		Select the desired setting		Store the setting

"Stored"
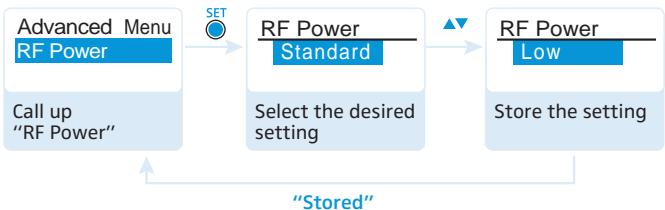
Via the "RF Power" menu item, you can adjust the transmission power in three steps ("Low", "Standard", "High").

ℹ️ It is vital to observe the notes on the enclosed frequency information sheet!

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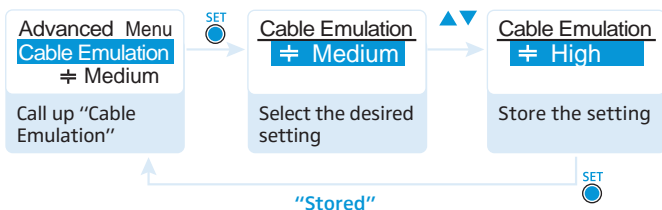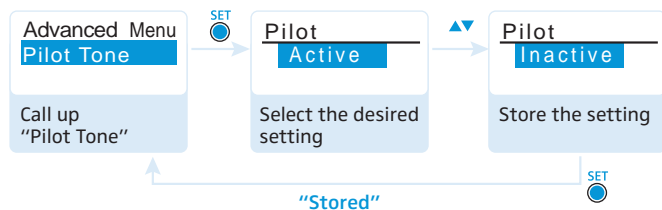## Emulating guitar cables – "Cable Emulation"

Advanced Menu Cable Emulation ÷ Medium	SET	Cable Emulation ÷ Medium	▲▼	Cable Emulation ÷ High
Call up "Cable Emulation"		Select the desired setting		Store the setting

SET

"Stored"

Via the "Cable Emulation" menu item, you can emulate 4 different guitar cable capacities.

Activating/deactivating the pilot tone transmission – "Pilot Tone"

Advanced Menu Pilot Tone	SET	Pilot Active	▲▼	Pilot Inactive
Call up "Pilot Tone"		Select the desired setting		Store the setting

SET

"Stored"

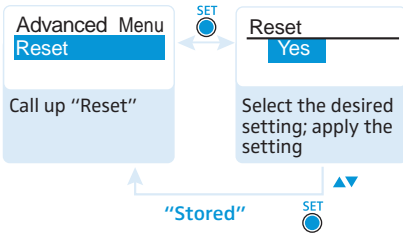The bodypack transmitter adds an inaudible signal, known as the pilot tone, to the transmitted signal. The receiver detects and evaluates the pilot tone.

The pilot tone supports the receiver's squelch function, thus protecting against interference due to RF signals from other devices.

Adjusting the contrast of the display panel – "LCD Contrast"

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

Resetting the settings made in the operating menu – "Reset"

Advanced Menu	SET	Reset
Reset		Yes
Call up "Reset"		Select the desired setting; apply the setting

"Stored" SET

When resetting the settings made in the operating menu, only the selected settings for the pilot tone and for the frequency banks "U1" to "U6" remain unchanged. For an overview of the factory-preset default settings, refer to the enclosed frequency information sheet.

Displaying the software revision – "Software Revision"

You can display the current software revision of the bodypack transmitter.

▶ For information on software updates, visit the SK 2000 product page on our website at www.sennheiser.com.

Synchronizing the bodypack transmitter with a receiver

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

> ▶ Only use a transmitter and a receiver from the same frequency range (see the type plates 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 the bodypack transmitter with the receiver – individual operation

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

For information on automatic synchronization of the bodypack transmitter with the receiver (individual operation), refer to the instruction manual of the receiver. This information is marked with the sync▶ icon.

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

▶ Make sure that you set the bodypack transmitter to the same frequency bank and the same channel as the receiver (see page 21).

If you still cannot establish a transmission link, read the chapter ''If a problem occurs ...'' on page 31.

Synchronizing bodypack transmitters with receivers – multi-channel operation

Combined with 2000 series receivers, SK 2000 bodypack transmitters can form transmission links that can be used in multi-channel systems.

For information on automatic synchronization of bodypack transmitters with receivers (multi-channel operation), refer to the instruction manual of your receiver.

For more information on multi-channel operation, visit the SK 2000 product page at www.sennheiser.com.

Cleaning the bodypack transmitter

CAUTION!	**Liquids can damage the electronics of the bodypack transmitter!**
	Liquids entering the housing of the device can cause a short-circuit and damage the electronics.
	▶ Keep all liquids away from the bodypack transmitter.
	▶ Do not use any solvents or cleansing agents.

▶ Use a cloth to clean the bodypack transmitter from time to time.

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Recommendations and tips

.. for the MKE 1, ME 102, ME 104 and ME 105 clip-on microphones

- To reduce level variations to a minimum when the user turns his or her head away from the microphone, attach the microphone as centrally as possible.
- To protect the microphone against excessive sweat/moisture, avoid direct skin contact.
- Attach the microphone carefully and conduct the cable so that noise due to friction is avoided.
- Always use the ME 104 and ME 105 directional microphones with a windshield and direct the microphones towards the sound source (e.g. mouth).

... for the HSP 2 and HSP 4 headmics

- Always use the microphone with a pop shield and position the microphone at the corner of the mouth.
- You can vary the bass reproduction by increasing/decreasing the talking distance.
- Make sure that the sound inlet is directed towards the mouth. The sound inlet is marked with a little dot.

... for the bodypack transmitter

- Make sure that the antenna and the microphone cable do not cross.
- The antenna should hang freely and be at least 1 cm away from the body. The antenna must not be in direct contact with the skin.
- For best results, make sure that the transmitter sensitivity is correctly adjusted.

... for optimum reception

- Transmission range depends to a large extent on location and can vary from about 10 m to about 150 m. There should be a ''free line of sight'' between transmitting and receiving antennas.
- To avoid overloading the receiver, observe a minimum distance of 5 m between transmitting and receiving antennas.

... for multi-channel operation

- For multi-channel operation, you should only use the channels within one frequency bank. Each of the frequency banks "1" to "20" accommodates factory-preset frequencies which are intermodulation-free.
- When using several transmitters simultaneously, interference can be avoided by maintaining a minimum distance of 20 cm between two transmitters.

If a problem occurs ...

Problem	Possible cause	Possible solution
Bodypack transmitter cannot be operated, "Locked" appears on the display panel	Lock mode is activated	Deactivate the lock mode (see page 12).
No operation indication	Batteries are flat or accupack is flat	Replace the batteries or recharge the accupack (see page 8).
No RF signal at the receiver	Bodypack transmitter and receiver are not on the same channel	Set the bodypack transmitter to the same channel as the receiver.
		Synchronize the bodypack transmitter with the receiver (see page 28).
	Transmission range is exceeded	Reduce the distance between bodypack transmitter and receiving antennas.
		Increase the transmission power (see page 25).
	RF signal is deactivated ("RF Mute")	Activate the RF signal (see page 13).

Problem	Possible cause	Possible solution
RF signal available, no audio signal, "MUTE" appears on the display panel	Bodypack transmitter is muted (MUTE)	Cancel the muting (see page 13).
	Receiver's squelch threshold is adjusted too high	Reduce the squelch threshold setting on the receiver.
	Bodypack transmitter doesn't transmit a pilot tone	Activate or deactivate the pilot tone transmission (see page 26).
Audio signal has a high level of background noise or is distorted	Bodypack transmitter's sensitivity is adjusted too low/too high	Adjust the input sensitivity (see page 20).

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

The following accessories are available from your specialist dealer:

Cat. No.	Product name and description
009950	BA 2015 accupack
009828	L 2015 charger
009826	CC 2 system case

Adapters

009827	DC 2 power adapter (12 V DC)

Cables

503163	CI 1-4 (3-pin special audio connector)

Microphones

502167	MKE 1-4 clip-on microphone. omni-directional, black
502168	MKE 1-4-3 clip-on microphone, omni-directional, beige
003876	ME 102-ant clip-on microphone, omni-directional, anthracite
003838	ME 102-ni clip-on microphone, omni-directional, nickel
004227	ME 104-ant clip-on microphone, cardioid, anthracite
004228	ME 104-ni clip-on microphone, cardioid, nickel
005301	ME 105-ant clip-on microphone, super-cardioid, anthracite
003402	ME 105-ni clip-on microphone, super-cardioid, nickel
009862	HSP 2 headmic, omni-directional
009864	HSP 4 headmic, cardioid

Microphone cables

004233	KA 100-4-ant copper wire cable, rt.-angled plug, anthracite
004234	KA 100-4-gr copper wire cable, rt.-angled plug, grey
004235	KA 100S-4-ant steel wire cable, straight plug, anthracite
004236	KA 100S-4-bei copper wire cable, straight plug, beige

Specifications

RF characteristics

Modulation	wideband FM
Frequency ranges	516–558, 558–626, 626–698, 718–790, 790–865 MHz (Aw to Dw, Gw, see page 4)
Transmission frequencies	up to 3,000 frequencies, tuneable in steps of 25 kHz
	20 frequency banks, each with up to 64 factory-preset channels
	6 frequency banks, each with up to 64 user programmable channels
Switching bandwidth	up to 75 MHz
Nominal/peak deviation	±24 kHz/±48 kHz
Frequency stability	$\leq \pm 15$ ppm
RF output power at 50 Ω	switchable: typ. 10 mW (Low) typ. 30 mW (Standard) typ. 50 mW (High)
Pilot tone squelch	can be switched off

AF characteristics

Compander system	Sennheiser HDX
AF frequency response	microphone: 80–18,000 Hz
	line: 25–18,000 Hz
Signal-to-noise ratio (1 mV, peak deviation)	≥ 120 dBA
THD	$\leq 0.9\%$
Max. input voltage (microphone/line)	3 V_{rms}
Input impedance	microphone: 40 kΩ, unbalanced
	line: 1 MΩ
Adjustment range of input sensitivity	60 dB, adjustable in 3-dB steps

Overall device

Temperature range	– 10°C to + 55°C
Power supply	2 AA size batteries, 1.5 V or BA 2015 accupack
Nominal voltage	2.4 V $=\!=\!=$
Power consumption:	
• at nominal voltage	typ. 180 mA (30 mW)
• with switched-off transmitter	≤ 25 µA
Operating time	typ. 8 hrs
Dimensions	approx. 82 mm x 64 mm x 24 mm
Weight (incl. batteries)	approx. 160 g

In compliance with

Europe:	EMC	EN 301489-1/-9
C E	Radio	EN 300422-1/-2
	Safety	EN 60065
		EN 62311 (SAR)

Approved by

Canada:	Industry Canada RSS 210
	IC: 2099A-SK2000
	limited to 806 MHz
USA:	FCC-Part 74
	FCC-ID: DMOSK2000
	limited to 698 MHz

Connector assignment

3-pin special audio connector
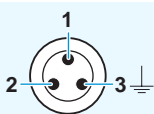
Pin 1:	AF and 5.2 V AB-powering; 8.2 kΩ internal resistance, optimized for Sennheiser pre-polarized condenser microphones
Pin 2:	+ 5.2 V for guitar or ground
Pin 3 and thread:	ground

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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/EC)
- WEEE Directive (2002/96/EC)

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

- Battery Directive (2006/66/EC)

  The supplied batteries or rechargeable batteries of the bodypack transmitter can be recycled. Please dispose of them as special waste or return them to your specialist dealer. In order to protect the environment, only dispose of exhausted batteries.

CE Declaration of Conformity

- $C \epsilon 0682 \, \textcircled{1}$
- R&TTE Directive (1999/5/EC)
  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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