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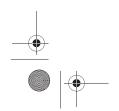


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Important safety instructions

- 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.
- Only clean the product with a dry cloth.
- Do not place the product near any heat sources such as radiators, stoves, or other devices (including amplifiers) that produce
- 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.





Intended use

Intended use of the Digital 9000 system components includes:

- having read and understood this instruction manual, 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 these instructions, or under operating conditions which differ from those described herein.

This instruction manual is also available at www.sennheiser.com.

Safety instructions for lithium-ion rechargeable batteries

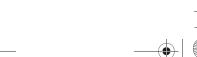
If abused or misused, the rechargeable batteries may leak. In extreme cases, they may even present a risk of



- explosion,
- heat generation,
- fire development,
- smoke or gas development.

Sennheiser does not accept any liability for damage arising from abuse or misuse.







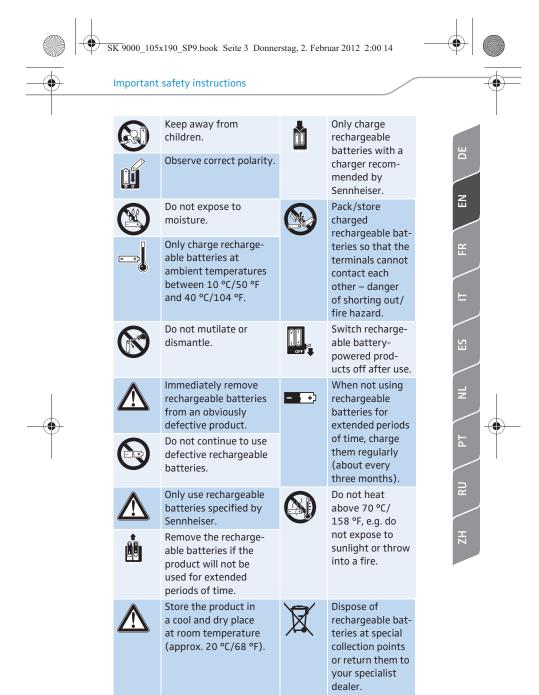


















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The SK 9000 bodypack transmitter

The SK 9000 bodypack transmitter

The SK 9000 transmitter offers great ease of use and can easily be adapted to any transmission situation:

- Rugged housing
- Input gain adjustable in 3 dB steps
- Switchable 1 kHz test tone, useful for level matching the system and for the walk test
- High accuracy of charge status display (BA 61) or remaining operating time display (B 61)
- Switchable low cut filter for filtering out low frequency components
- Frequencies tuneable in 25 kHz steps
- Power supply optionally via BA 61 lithium-ion accupack or B 61 battery pack (3 AA size alkaline batteries or 3 AA size lithium batteries)
- Automatic detection of the input signal type (mic, line, instrument) when Sennheiser accessories are used
- Emulation of different guitar cable lengths
- Different clip-on microphones for different areas of application (see page 6)
- Command function via KA 9000 COM command adapter





- 1 SK 9000 bodypack transmitter
- supplement "Framework requirements and restrictions on frequency usage"
- 1 instruction manual
- You additionally require microphones or the CI 1-4 line/ instrument cable as well as a BA 61 accupack and/or a B 61 battery pack.
- A list of accessories can be found on the Digital 9000 product page at www.sennheiser.com. For information on suppliers, contact your local Sennheiser partner: www.sennheiser.com > "Service & Support".







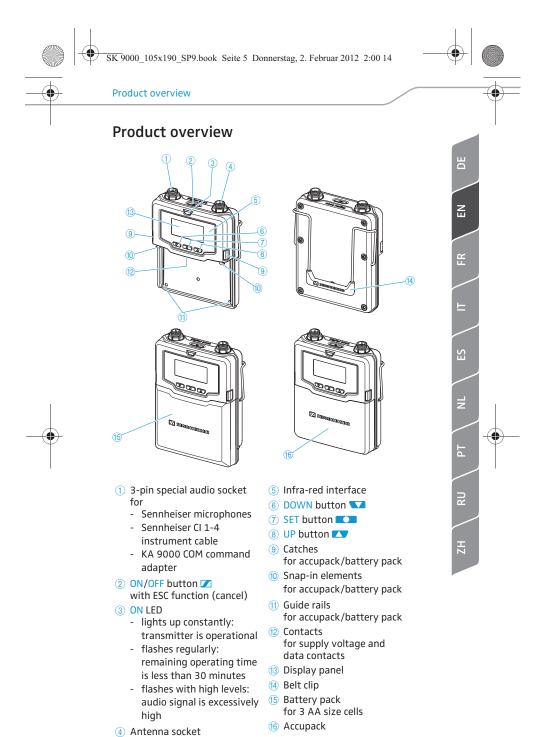


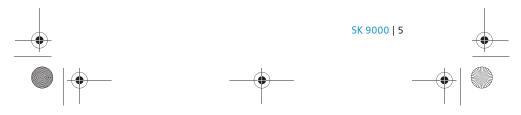
















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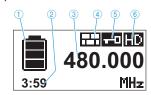




Product overview

Overview of the standard display after switch-on

After switch-on, the bodypack transmitter displays the following standard display:



- 1 Display for charge status of the accupack/battery pack
- ② Operating time display (only when used with the BA 61)
- ③ Frequency/channel/name display, switchable
- 4 "Encryption" display
- 5 Lock mode icon
- 6 Transmission mode display: "HD" (High Definition Audio) or "LR" (Long Range Audio)

Condenser microphones for SK 9000 bodypack transmitter





1/4" (6.3 mm) jack plug (silent plug) to 3-pin special audio connector

Selecting the accupack/battery pack

You can power the SK 9000 bodypack transmitter using:

- the BA 61 accupack
- the B 61 battery pack for three 1.5 V AA size batteries

Charge the BA 61 accupack before using it for the first time (see the instruction manual for the Digital 9000 system).

















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CAUTION!

Damage to the bodypack transmitter and/or the accupack/ battery pack

If you touch the following contacts, they can become dirty or damaged:

Contacts for supply voltage and data contacts (2) of the bodypack transmitter

Preparing the SK 9000 for use

- Charging and data contacts of the BA 61 accupack
- Data contacts of the B 61 battery pack
- Do not touch the contacts of the accupack/battery pack nor the contacts of the bodypack

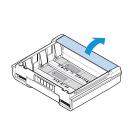
Preparing the SK 9000 for use



For detailed information on the following points, refer to the instruction manual for the Digital 9000 system.

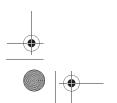
Inserting batteries into the B 61 battery pack

Insert the batteries into the battery pack (see diagram). Observe correct polarity when inserting the batteries.





Only insert high-quality AA size batteries (e.g. lithium or alkaline batteries) into the B 61 battery pack. If you insert rechargeable batteries, the charge status display 1 will show a wrong value.









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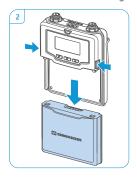
Preparing the SK 9000 for use

Removing and attaching the accupack/battery pack

To remove the accupack/battery pack:

▶ Push the two catches ③ and pull the accupack/battery pack away from the bodypack transmitter as shown in diagram 2.

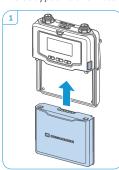




To attach the accupack/battery pack:

Slide the accupack/battery pack onto the guide rails (i) (see diagram 1) until it locks into place with an audible click. The bodypack transmitter is then operational.







Connecting microphones and audio sources

➤ Connect the 3-pin special audio connector of the Sennheiser microphone or the Sennheiser CI 1-4 line/instrument cable to the 3-pin special audio socket ①.







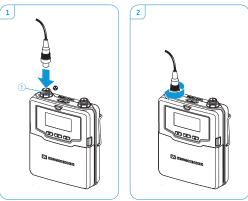






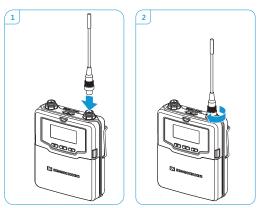


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Connecting the antenna

- Only use the supplied antenna.
- Connect the antenna as shown:



Connecting the KA 9000 COM command adapter

- ➤ Connect the 3-pin special audio connector of the KA 9000 COM to the 3-pin special audio socket ① of the SK 9000.
- Connect the 3-pin special audio connector of the Sennheiser instrument cable to the microphone input socket of the KA 9000 COM.









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Using the SK 9000

Using the SK 9000



Before using your bodypack transmitter, ask the relevant wireless regulatory authority for the exact frequency allocations and apply for an individual license if necessary.

The supplied supplement "Framework requirements and restrictions on frequency usage" provides an overview of the different European framework requirements and restrictions on frequency usage. If there is no entry in the supplement, ask the relevant wireless regulatory authority for the current rules governing frequency usage.

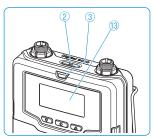


We recommend you to adjust the transmitter settings via the operating menu of the EM 9046 receiver and then to synchronize the transmitter and the receiver.

Switching the SK 9000 on/off

To switch your bodypack transmitter on:







The ON LED ③ lights up and the "Name" standard display (see page 16) appears on the display panel ⑥. The bodypack transmitter transmits an RF signal and the transmission mode display "HD"/"LR" lights up constantly:



To switch your bodypack transmitter off:

Keep the ON/OFF button 2 2 pressed until the display panel goes off.





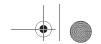
















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Using the SK 9000

▶ Remove the accupack/battery pack when the transmitter will not be used for extended periods of time (see page 8).



Switching on the SK 9000 on and checking the set frequency before the RF signal is activated

➤ Switch on the SK 9000 by keeping the ON/OFF button 🗾 ② pressed until the "Name" standard display appears. The RF signal is not activated and the transmission mode display "HD"/"LR" flashes.

If you call up the "Tune" or "Preset" menu item within the next 10 seconds, the RF signal remains deactivated until you exit the menu item. If you do not call up one of the mentioned menu items, the RF signal is automatically activated after 10 seconds.

To check the set frequency/the selected frequency preset:

► Call up the operating menu and press the UP button ✓ 8/ DOWN button **▼** ⑥ until the "Tune" or "Preset" menu item appears.

The set frequency/the selected frequency preset is displayed.

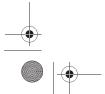
If the displayed value is the desired one:

Wait for 10 seconds to pass. The RF signal is automatically activated and the transmission mode display "HD"/"LR" lights up constantly.

If the displayed value is not the desired one:

- ► Call up the "Tune" or "Preset" menu item. The RF signal remains deactivated until you exit the menu item.
- ▶ Set the frequency (menu item "Tune") or select a frequency preset (menu item "Preset") and store your setting. The RF signal is activated and the bodypack transmitter transmits an RF signal on the set frequency.

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Using the SK 9000

Activating/deactivating the automatic lock mode (Autolock)

The bodypack transmitter has an automatic lock mode that can be activated or deactivated via the "LOCK" menu item (see page 16).

To permanently activate the automatic lock mode:

- ► Call up the "LOCK" menu item and select "On".
- The automatic lock mode is activated and the lock mode icon (5) appears on the standard display.

When the automatic lock mode is activated, you can still call up the operating menu, use the UP button (8)/DOWN button (6) to select menu items and call up the "LOCK" menu item in order to deactivate the automatic lock mode. If, however, you try to call up any other menu item, the following display appears on the display panel:



While this display is shown (about 4 seconds), you can temporarily deactivate the lock mode:

Press the UP button (8) or the DOWN button (6). The following display appears on the display panel:



Press the SET button 7.

The lock mode is temporarily deactivated.

- If you do not press a button within the next 10 seconds, the lock mode is activated again.
- If you continue navigating the operating menu or if you call up a menu item, the lock mode is activated 10 seconds after the last button press.
- If you exit a called up menu item, the lock mode is activated immediately after exiting the menu item.

To permanently deactivate the automatic lock mode:

- ► Call up the "LOCK" menu item and select "Off".
- ► Store your setting by pressing the SET button 7.





















Basic functions of the Sennheiser operating menu

A special feature of the Sennheiser 9000 series is the straightforward, intuitive operating concept. As a result, you can act quickly and precisely – even in stressful situations, for example on stage or during a live show or presentation.

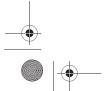
Calling up and selecting menu items, changing and storing settings, cancelling an entry

Button	Operation
UP / DOWN / / SET	 Press the SET button to call up the operating menu or a menu item, to switch between the selection areas of a menu item and to store your settings. Press the UP button // DOWN button to select menu items and to change the settings of a menu item.
ON/OFF ✓	▶ Press the ON/OFF button ✓ to exit a menu item without storing your set- tings or to change from the operating menu to the standard display.

When keeping the UP button /DOWN button pressed within a menu item, you continuously adjust the next/previous setting of the menu item. Keep the buttons pressed for a longer time to accelerate the speed.

Overview of the status displays

Status display	Meaning
	SK 9000 switches on
	SK 9000 switches off
6:59 4:40 2:20	BA/B 61 accupack/battery pack: charge status \leq 100% \leq 70% \leq 30% BA 61 accupack: remaining operating time in h:mm
	Accupack/battery pack is completely discharged, transmitter is not operational
	Setting is being stored

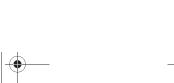
























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Using the SK 9000

Status display	Meaning
	Firmware is being updated
*FRIL	Firmware update has failed

Overview of the menu items

Icon	Name	Function	Page
MHz	Tune	Sets a frequency	15
mu. MHz	Preset	Selects a frequency preset	15
:BC	Name	Enters a name	15
7	Gain	Adjusts the input gain	15
7	Low cut	Sets the low-cut filter	16
	Display	Selects a standard display	16
•	Cable	Emulates different instru- ment cable lengths	16
- 0	Lock	Activates/deactivates the lock mode	16
TEST	Test tone	Activates the test tone for level matching the system and for the walk test	16
9	Reset	Resets the factory default settings	17
i	Information	Displays the firmware version and frequency range	17



















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Using the SK 9000

"Tune" – Setting a frequency

Via the "Tune" menu item, you can set a frequency. The frequencies are tuneable in 25 kHz steps. If you store your setting, the set frequency is automatically assigned to the user-defined frequency preset "U". The bodypack transmitter then changes from the currently set frequency preset to the frequency preset "U" and transmits on the set frequency.

"Preset" – Selecting a frequency preset

Via the "Preset" menu item, you can select a frequency preset from the active booster frequency range or the frequency preset "U" (see also the "Tune" menu item).

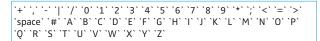


To activate a different booster frequency range:

Proceed as described in the instruction manual for the Digital 9000 system. You first activate the booster frequency range on the EM 9046. If you then synchronize the transmitter and the receiver, the booster frequency range on the transmitter will also be activated.

"Name" - Entering a name

Via the "Name" menu item, you can enter a freely selectable name for the bodypack transmitter. The name can consist of up to 6 characters from the following character set:



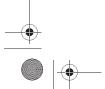
"Gain" - Adjusting the input gain

Via the "Gain" menu item, you can adjust the input gain in 3 dB steps from -6 to +42 dB.



When you are using Sennheiser microphones or the Sennheiser CI 1-4 line/instrument cable, the bodypack transmitter automatically detects the type of input signal present and changes the adjustment range of the "Gain" menu item accordingly.

Cable type	Adjustment range
Sennheiser microphone cable	0 dB to +42 dB
Sennheiser Cl 1-4 line/instrument cable	-6 dB to +9 dB

















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Using the SK 9000

"Low cut" - Setting the low-cut filter

Via the "Low cut" menu item, you can set the low-cut filter. When you are using Sennheiser microphones or the Sennheiser CI 1-4 line/ instrument cable, the bodypack transmitter automatically detects the type of input signal present and changes the possible settings of the "Low cut" menu item accordingly:

Cable type	Settings
Sennheiser microphone cable	"60 Hz", "80 Hz", "100 Hz", "120 Hz"
Sennheiser CI 1-4 line/instrument cable	"30 Hz"

"Display" - Selecting a standard display

The "Display" menu item allows you to select one out of 3 standard displays. The "Name" standard display is factory preset.









Name



Via the "Cable" menu item, you can emulate the lengths of instrument cables in 3 steps. You can use this function when you are using the Sennheiser CI 1-4 line/Instrument cable.

"Lock" - Activating/deactivating the lock mode

Via the "Lock" menu item, you can activate or deactivate the lock mode. For more information on how to activate or deactivate the lock mode, refer to page 12.

"Test tone" - Activating the 1 kHz test tone

Via the "Test tone" menu item, you can activate a 1 kHz test tone. This test tone is transmitted instead of the input signal. You can use this function for level matching your system or for the walk test.





















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"Reset" – Resetting the factory default settings

Via the "Reset" menu item, you can reset the bodypack transmitter to its factory default settings.

"Information" - Displaying the firmware version and frequency range

Via the "Information" menu item, you can display the firmware version and the transmitter's frequency range.

Cleaning and maintaining the SK 9000

CAUTION!

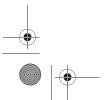
Liquids can damage the electronics of the devices!

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

- Keep all liquids away from the devices.
- Do not use any solvents or cleansing agents.
- ▶ Remove the rechargeable batteries or batteries before cleaning.
- Only use a soft, dry cloth to clean the devices.
- Wipe the contacts 12 with a dry cloth.

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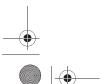












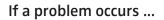












Problem	Possible cause	Possible solution
Transmitter cannot be oper- ated, "LOCK" appears on the display panel	Lock mode is activated	Deactivate the lock mode.
No operation indication	Batteries are flat or accupack is flat	Replace the batteries or recharge the accupack (see page 8).
No RF signal at the receiver	Transmitter and receiver are not on the same frequency	Transmitter to the same frequency as the receiver.
	Transmission range is exceeded	Reduce the distance between transmitter and receiving antennas.
	Transmitter's RF signal is deactivated ("RF Mute")	Activate the RF signal.
Audio signal has a high level of background noise or is distorted	Transmitter input gain is adjusted too low/too high	Adjust the input gain (see page 15).

If a problem occurs that is not listed in the above table or if the problem cannot be solved with the proposed solutions, please $% \left(1\right) =\left(1\right) \left(1\right)$ contact your local Sennheiser partner for assistance.

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













Frequency ranges

470 to 798 MHz,

divided into 24 MHz booster frequency ranges

EM 9046 DRX TX variant Booster variant A1-A8

470-798 MHz A1-A4 A1 470-494 MHz A2 494-518 MHz to 934 MHz) 558 MHz A3 510-534 MHz A4 534-558 MHz A5-A8 A5 550-574 MHz A6 574-598 MHz 638 MHz A7 590-614 MHz A8 614-638 MHz

EM 9046 DRX TX variant Booster variant B1-B8

470-798 MHz B1-B4 B1 630-654 MHz (expandable to 934 MHz) 630-B2 654-678 MHz 718 MHz B3 670-694 MHz

> B4 694-718 MHz B5-B8 710-710-734 MHz B6 734-758 MHz 798 MHz B7 750-774 MHz

> > B8 774-798 MHz

Transmission method

digital modulation

"HD" mode:

without audio data compression

"LR" mode:

SeDAC (Sennheiser Digital Audio Codec)

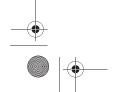
Audio frequency response

30 Hz to 20 kHz (3 dB) with SK 9000 line-in 60 Hz to 20 kHz (3 dB) with SK 9000 mic

Dynamic range

"HD" mode: 112 dB(A) "LR" mode: 101 dB(A)

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Specifications

Analog Audio Out: 3.2 ms Latency

Digital Audio Out: 3 ms (AES/EBU)

"HD": < 0.01%, "LR": < 0.03% THD

(at 1 kHz)

Operating conditions

Ambient temperature

-10°C to +50°C

Relative humidity

max. 85% at 40°C (non-condensing)

Protection against dripof liquids

ping and light splashing the product must not be exposed to dripping and splashing (IP2X)

Storage and transport conditions

Ambient temperature

-25°C to +70°C

Relative humidity

max. 90% at 40°C

Protection against dripof liquids

ping and light splashing the product must not be exposed to dripping and splashing (IP2X)

Shock resistance

as per IEC 68 or EN 60068, T2-27

SK 9000 characteristics

RF characteristics

Frequency ranges

470 MHz to 798 MHz,

divided into 4 ranges:

SK 9000 A1-A4: 470-558 MHz SK 9000 A5-A8: 550-638 MHz SK 9000 B1-B4: 630-718 MHz SK 9000 B5-B8: 710-798 MHz (see also table "System characteristics"

on page 19)

Switching bandwidth RF output power

88 MHz

"HD" mode: 10 mW rms, 50 mW peak "LR" mode: 25 mW rms, 50 mW peak

Frequency stability Tuneability Antenna output

< 5 ppm

in steps of 25 kHz coax socket, 50 Ω



















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Specifications

AF characteristics

Mic/line input	3-pin special audio socket
Audio gain	mic: adjustable in 3 dB steps from 0 dB to +42 dB
	instruments: adjustable in 3 dB steps from –6 dB to +9 dB
	line: -6 dB
Input impedance	mic: 22 k Ω
	instruments/line: 1 M Ω
Lower cut-off	mic: adjustable
frequency (-3 dB)	60 Hz, 80 Hz, 100 Hz, 120 Hz
	instruments/line: 30 Hz
Instrument cable	
emulation	cable length adjustable in 3 steps

Other characteristics

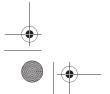
6.5 hrs (with BA 61 accupack) Operating time Power consumption approx. 1 W Dimensions

76 x 62 x 20 mm (H x W x D, with BA 61 accupack)

Weight approx. 147 g (with BA 61 accupack and belt clip)

Pin assignment of 3-pin special audio socket

Socket	Pin assignment
2003	Pin 1 and thread: ground Pin 2: line/instrument Pin 3: microphone











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Manufacturer Declarations

In compliance with

Europe

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

Approved by

USA

FC Part 74 FCC-ID: DMOSK9000 limited to 698 MHz

Canada

Industry Canada RSS-123 IC: 2099A-SK9000 limited to 698 MHz

Manufacturer Declarations

Warrantv

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)
- Battery Directive (2006/66/EC)

The batteries or rechargeable batteries used 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

- R&TTE Directive (1999/5/EC)
- Low Voltage Directive (2006/95/EC)

The declarations are available at www.sennheiser.com.

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



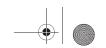


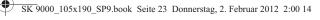
















Statements regarding FCC and Industry Canada

This device complies with Part 15 of the FCC Rules and with RSS-123 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.



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