



# Antenna Splitter ASA 1



Instruction manual

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Thank you for choosing Sennheiser!

We have designed this product to give you reliable operation over many years. Over 60 years of accumulated expertise in the design and manufacture of high-quality electro-acoustic equipment have made Sennheiser a world-leading company in this field.

Please take a few moments to read these instructions carefully, as we want you to enjoy your new Sennheiser products quickly and to the fullest.

# Important safety instructions

- Read this instruction manual.
- Keep this instruction manual. Always include this instruction manual when passing the device on to third parties.
- Heed all warnings and follow all instructions.
- Clean only with a slightly damp cloth.
- Refer all servicing to qualified service personnel.  
Servicing is required if the device has been damaged in any way, liquid has been spilled, objects have fallen inside, the device has been exposed to rain or moisture, does not operate properly or has been dropped.
- **WARNING:** To reduce the risk of fire or electric shock, do not use the device near water and do not expose it to rain or moisture. Do not place objects filled with liquids, such as vases or coffee cups, on the device.
- Only use the NT 1-1 mains unit.
- Do not block any ventilation openings. Install the device in accordance with the instructions given in this manual.
- Do not install the device near any heat sources.
- Only use attachments/accessories specified by Sennheiser.

## 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 a safe operating condition.

### Intended use of the device

Intended use of the ASA 1 includes:

- having read and understood this instruction manual especially the chapter "Important safety instructions" on page 2,
- using the device within the operating conditions and limitations described in this instruction manual.

"Improper use" means using the ASA 1 other than as described in this instruction manual, or under operating conditions which differ from those described herein.

# The ASA 1 active antenna splitter

The ASA 1 active antenna splitter has been designed to enable routing of UHF antenna signals to several receivers in a multi-channel system. Up to four diversity receivers may be supplied with signal by only two antennas. The integral RF amplifiers ensure that the ASA 1 does not introduce any additional UHF signal loss.

The ASA 1 incorporates DC distribution to enable simultaneous powering of up to four receivers and two antenna boosters via its BNC sockets. The antenna boosters may be required in order to compensate for cable losses due to long antenna cables. A single NT 1-1 mains unit (to be ordered separately) is required to power the ASA 1, the connected receivers and antenna boosters.

By linking two ASA 1, an 8-channel diversity system can be operated with only two antennas.

Using the GA 3 rack adapter, two ASA 1 or one ASA 1 and one stationary receiver (e.g. EM 100 G3, EM 300 G3 or EM 500 G3) can be mounted into a 19" rack.

The ASA 1 is suitable for the following areas of application:

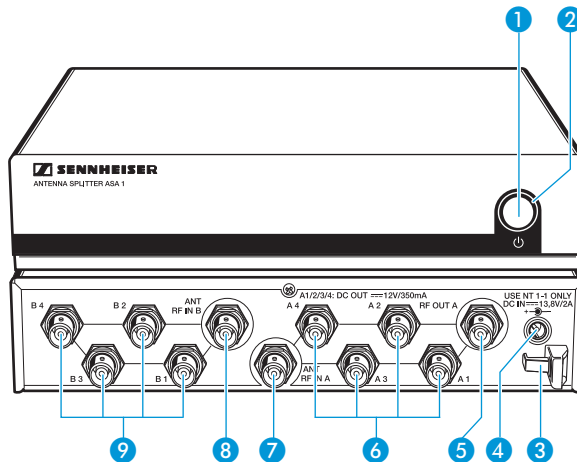
- Multi-channel RF installations
- Permanent installations in small conference centres and similar venues

## Delivery includes

- 1 ASA 1 antenna splitter
- 1 set of device feet
- 8 BNC cables
- 1 instruction manual

You additionally require the NT 1-1 mains unit with a suitable mains connector (see "Accessories and spare parts" on page 17).

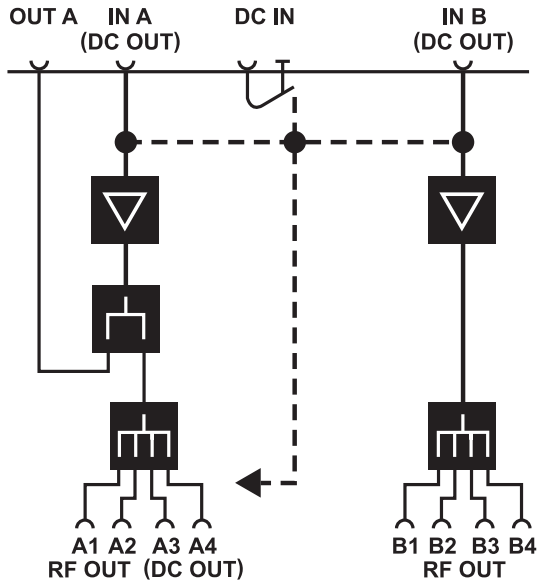
# Operating elements



- 1 On/Off button
- 2 Operation indicator
- 3 Cable grip for cable of mains unit
- 4 DC IN socket  
for connection of NT 1-1 mains unit
- 5 BNC socket RF OUT A  
RF output only for connection of an additional ASA 1  
(to create a 1-to-8 diversity splitter)
- 6 Four BNC sockets A1 to A4  
RF outputs of diversity section A for connection of  
the receivers  
Each of these RF outputs can power one receiver.
- 7 BNC socket ANT RF IN A  
antenna input of diversity section A
- 8 BNC socket ANT RF IN B  
antenna input of diversity section B
- 9 Four BNC sockets B1 to B4  
RF outputs of diversity section B for connection of  
the receivers

### Block diagram

The below block diagram (also depicted on the base of the device) shows the signal flow in the device.





# Putting the ASA 1 into operation

## Preparing the ASA 1 for use

For table-top use, fix the device feet to the base of the ASA 1. Do not fit the device feet when mounting the ASA 1 into a 19" rack.

### CAUTION! Risk of staining of surfaces!

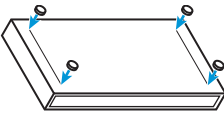
Some surfaces have been treated with varnish, polish or synthetics which might cause stains when they come into contact with other synthetics. Despite a thorough testing of the synthetics used by us, we cannot rule out the possibility of staining.

▶ Do not place the ASA 1 on delicate surfaces.

▶ Ensure that the base of the ASA 1 is clean and free from grease before fitting the device feet.

▶ Fix the device feet to the base of the ASA 1 by peeling off the backing paper and fitting them as shown on the left.

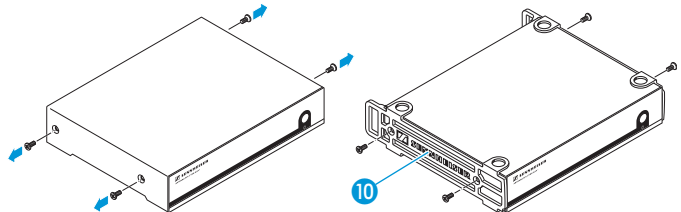
▶ Place the ASA 1 on a flat, horizontal surface.



### Fastening the stacking elements (see "Accessories and spare parts" on page 17)

The stacking elements are designed to help protect the operating elements from damage or deformation, e.g. if the ASA 1 is dropped.

To fasten the stacking elements:



▶ Unscrew and remove the four recessed head screws (M4x8).

▶ Secure the stacking elements 10 to the ASA 1.

## Stacking several ASA 1

You can stack the ASA 1 and the receivers on top of each other.

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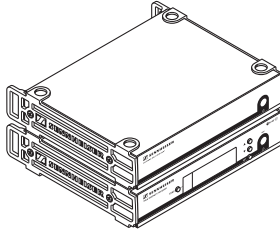
### CAUTION!



#### Danger of injury due to toppling stacks!

High stacks can easily topple over.

- ▶ Place the stack on an absolutely flat surface.
  - ▶ Secure the stack against toppling over.
- 



- ▶ Stack the devices so that the recesses of the stacking elements completely engage with each other.

## Mounting the ASA 1 into a 19" rack

Do not fit the device feet when mounting the ASA 1 into a 19" rack.

---

### CAUTION!



#### Risks when rack mounting the device!

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.

- ▶ The ambient temperature within the rack must not exceed the temperature limit specified in the specifications.
- ▶ When rack mounting, take good care not to affect the ventilation required for safe operation. 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.

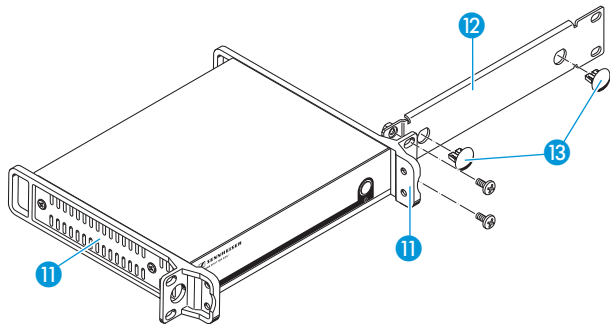
- ▶ When rack mounting, please note that intrinsically harmless leakage currents of the individual mains units may accumulate, thereby exceeding the allowable limit value. As a remedy, ground the rack via an additional ground connection.

For rack mounting the ASA 1, you require (see “Accessories and spare parts” on page 17):

- the GA 3 19” rack adapter

#### Rack mounting one ASA 1

- ▶ Unscrew and remove the two recessed head screws (M4x8) on one side of the ASA 1.



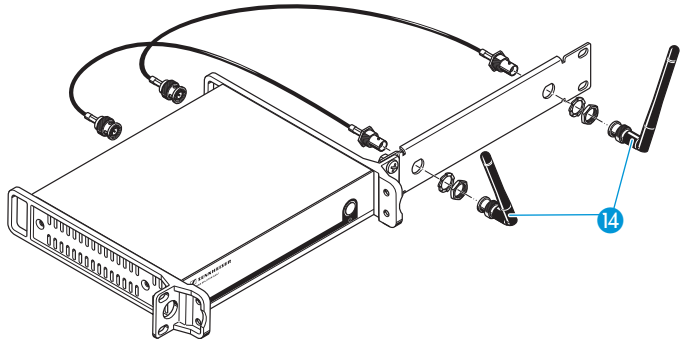
- ▶ Hold one rack mount “ear” to the ASA 1.
- ▶ Secure the rack mount “ear” 11 to the side of the ASA 1 using the two recessed head screws.
- ▶ Repeat for the other rack mount “ear” as described above.
- ▶ Secure the blanking plate 12 to one of the rack mount “ears” 11 using two recessed head screws (M 6x10).

If you do **not** want to front mount the antennas:

- ▶ Insert the two blanking plugs 13 into the holes of the blanking plate.

If you want to front mount the antennas:

- ▶ Use the optional AM 2 antenna front mount kit (see "Accessories and spare parts" on page 17).



If you want to use remote antennas (see "Accessories and spare parts" on page 17):

- ▶ Connect the remote antennas.

To mount the ASA 1 into the rack:

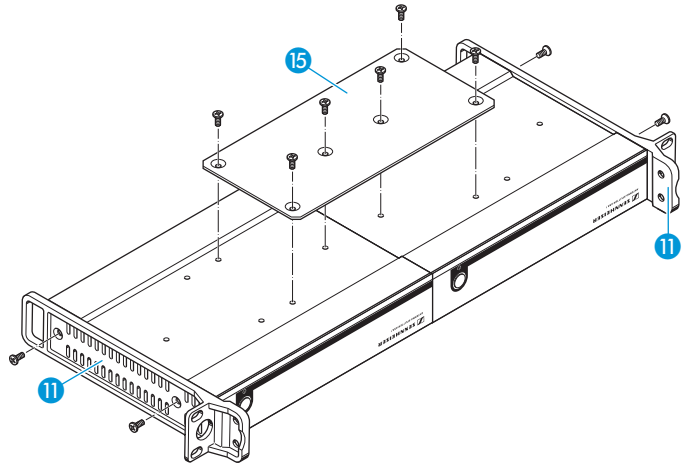
- ▶ Slide the ASA 1 with the mounted blanking plate into the 19" rack.
- ▶ Secure the rack mount "ears" 11 to the 19" rack.

If you are using the rod antennas 14:

- ▶ Align the antennas in a V-shape to obtain the best possible reception.

**Rack mounting  
two devices into  
the same 19" slot**

- ▶ Place the two devices (e.g. the ASA 1 and a stationary receiver) side by side upside-down onto a flat surface:



- ▶ Secure the jointing plate 15 to the devices using six recessed head screws (M 3x6).
- ▶ Secure the rack mount "ears" 11 to the devices as described in the section "Rack mounting one ASA 1" on page 9.

To mount the antennas:

- ▶ Use remote antennas.

To mount the devices into the rack:

- ▶ Slide the devices into the 19" rack.
- ▶ Secure the rack mount "ears" to the 19" rack.

## Connecting devices to the ASA 1 and switching the ASA 1 on

### Connecting the antennas

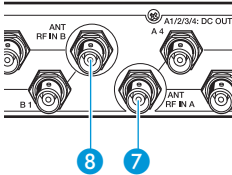


#### Recommendation for optimum reception

To ensure optimum reception even under difficult reception conditions, we recommend using remote antennas.

▶ You can connect the following antenna types to the antenna inputs **7** and **8**:

- two A 1031-U or A 2003-UHF passive antennas
- or a combination of passive antenna (A 1031-U or A 2003-U) and antenna booster (AB 3).

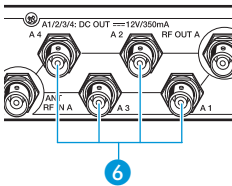


### Connecting the receivers

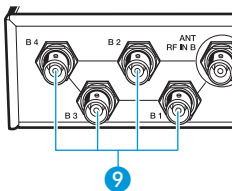
You can connect up to four stationary receivers (e.g. EM 100 G3, EM 300 G3 or EM 500 G3) to the ASA 1. The splitter also incorporates DC distribution for powering the receivers.

▶ Connect one of the receiver's antenna inputs to one of the BNC sockets **A1** to **A4** **6**. Suitable BNC cables are included in the delivery.

These receivers do not require their individual power supply. They are now powered via the BNC sockets **A1** to **A4** **6**.



▶ Connect the other antenna input of the receiver to one of the BNC sockets **B1** to **B4** **9**. Suitable BNC cables are included in the delivery.



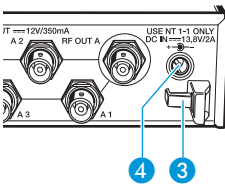
## Connecting the ASA 1 to the mains

For powering the ASA 1, the connected receivers and two optional antenna boosters, you require the NT 1-1 mains unit (see "Accessories and spare parts" on page 17).



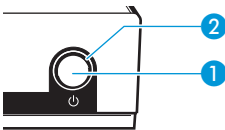
### Using the correct mains unit

Only use the NT 1-1 mains unit with the blue DC connector. It is designed for the ASA 1 and ensures safe operation.



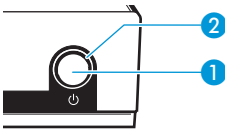
- ▶ Pass the cable of the NT 1-1 mains unit through the cable grip **3**.
- ▶ Insert the blue DC connector of the NT 1-1 mains unit into the **DC IN** socket **4**.
- ▶ Plug the mains unit into a wall socket. The operation indicator **2** lights up green. The ASA 1 is ready for operation.

## Switching the ASA 1 on



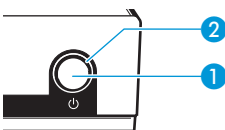
- ▶ Briefly press the On/Off button **1**. The operation indicator **2** lights up green. The RF signals of the connected antennas are distributed to all connected receivers.

## Setting the ASA 1 to standby mode



- ▶ Press the On/Off button **1** for approx. 2 seconds. The operation indicator **2** goes off. The ASA 1 switches to standby mode. Connected antenna boosters are switched off. Connected receivers are switched off, provided that they are powered via the BNC sockets **A1** to **A4** **6**.

## Disconnecting the ASA 1 from the mains

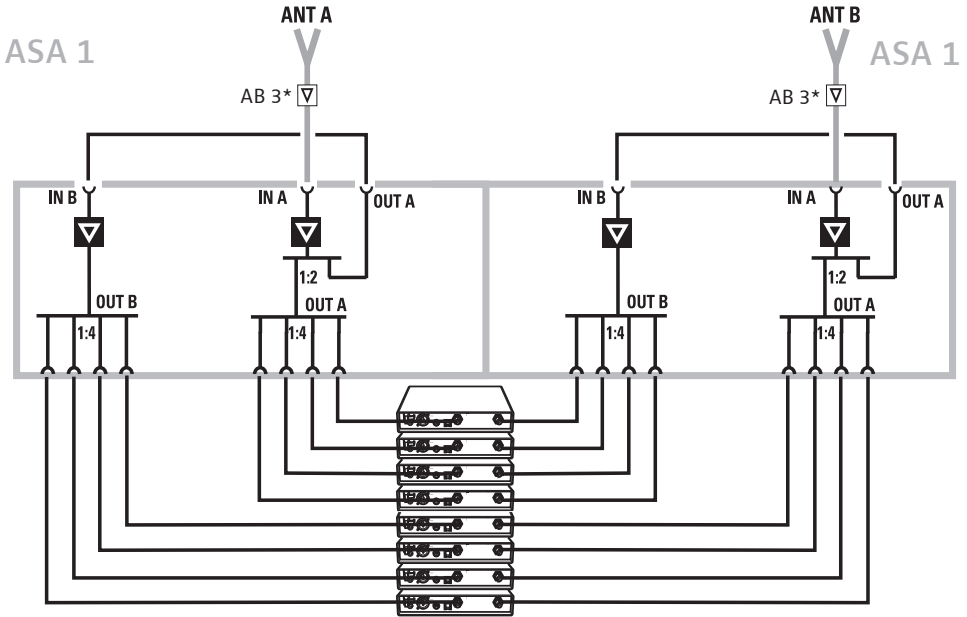


- ▶ The On/Off button **1** only deactivates the supply voltage for the antenna boosters and receivers but does **not** disconnect the ASA 1 from the mains. To disconnect the ASA 1 from the mains:
  - ▶ Unplug the mains unit from the wall socket. The operation indicator **2** goes off. The ASA 1 is switched off.

## Making an 8-channel system using the ASA 1

There are two ways to link two ASA 1 together to create a 1-to-8 diversity splitter:

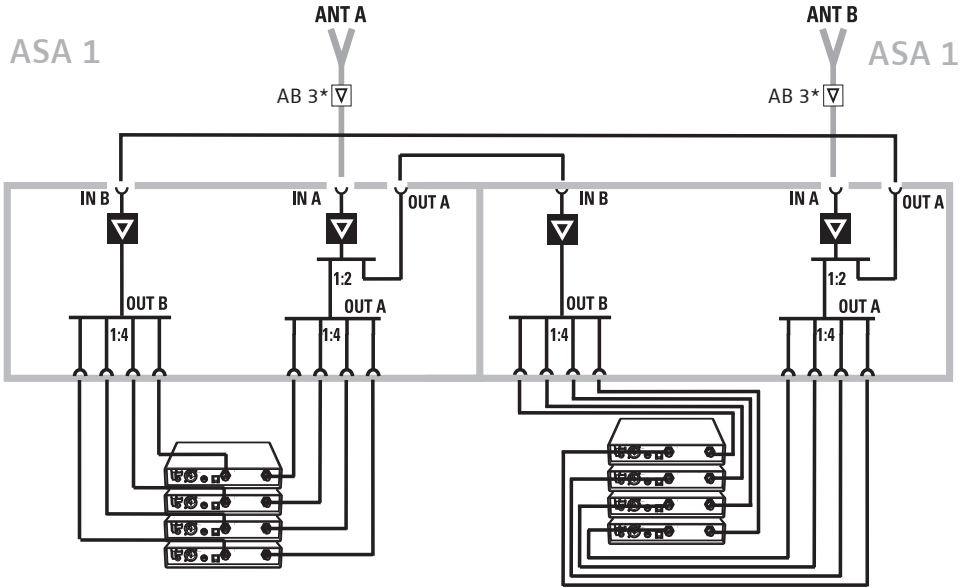
First possibility: Two antennas supply an 8-channel system



\* AB-3 antenna boosters are only required for longer antenna cables (from approx. 10 m).



Second possibility: Linking two 4-channel systems



\* AB-3 antenna boosters are only required for longer antenna cables (from approx. 10 m).

# Cleaning the ASA 1

**CAUTION!**

**Liquids can damage the electronics of the device!**

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

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

- ▶ Before cleaning, disconnect the ASA 1 from the mains (see page 13).
- ▶ Only use a slightly damp cloth to clean the device.

## If a problem occurs ...

Problem	Possible cause	Possible solution
Receivers cannot be switched on	Receivers are not powered	Check the connections of the NT 1-1 mains unit and/or check the BNC sockets <a href="#">A1</a> to <a href="#">A4</a> <a href="#">6</a>
Disturbed RF reception	Antennas are not connected correctly	Check the antenna connections (see page 12)
	Connection cables are defective	Replace the connection cables
	Excessive RF signal attenuation due to too long antenna cables or incorrect type of antenna cable	Only use the recommended antenna cables (see page 17) or use shorter antenna cables or use AB-3 antenna boosters from the matching frequency range and connect them the correct way round

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.

# Accessories and spare parts

The following ASA 1 accessories are available from your Sennheiser partner:

## Cat. No. Accessory/spare part

<b>503158</b>	NT 1-1 EU	Mains unit for powering the ASA 1, four receivers and two antenna boosters, EU version
<b>503873</b>	NT 1-1 US	Mains unit for powering the ASA 1, four receivers and two antenna boosters, 120 V version
<b>503874</b>	NT 1-1 UK	Mains unit for powering the ASA 1, four receivers and two antenna boosters, UK version

## Mounting material

<b>503167</b>	GA 3	Rack adapter
<b>009912</b>	AM 2	Antenna front mount kit (for GA 3 rack adapter)
<b>532711</b>		Stacking elements (1 pair)

## Antennas

<b>004645</b>	A 1031-U	Broadband remote antenna
<b>003658</b>	A 2003-UHF	Broadband directional antenna

## Antenna boosters

<b>502567</b>	AB 3-A:	516–558 MHz
<b>502572</b>	AB 3-G:	566–608 MHz
<b>502568</b>	AB 3-B:	626–668 MHz
<b>502569</b>	AB 3-C:	734–776 MHz
<b>502570</b>	AB 3-D:	780–822 MHz
<b>502571</b>	AB 3-E:	823–865 MHz

## Antenna cables (coaxial cable)

<b>002324</b>	GZL 1019-A1	Type RG 58, BNC connectors, 1 m
<b>002325</b>	GZL 1019-A5	Type RG 58, BNC connectors, 5 m
<b>002326</b>	GZL 1019-A10	Type RG 58, BNC connectors, 10 m

# Specifications

ASA 1 antenna splitter	2 x 1:4 or 1 x 1:8, active
Antenna cable	8 items, 50 cm, BNC
Frequency range	500 to 870 MHz at -3 dB
Amplification In A – Out A	0 ± 1 dB
Amplification In A – Out A1 ... A4	0 ± 1 dB
Amplification In B – Out B1 ... B4	0 ± 1 dB
Impedance	50 Ω
Operating voltage	13.8 V DC (with NT 1-1 mains unit)
Total current consumption	max. 2.0 A with 4 receivers and 2 antenna boosters
Supply voltage of antenna boosters at ANT RF IN A and ANT RF IN B	12 V, 130 mA
Supply voltage of receivers at A1 ... A4	12 V (protected from reverse feed), 350 mA
Relative humidity	5 to 95%
Operating temperature range	-10°C to +55°C
Storage temperature range	-20°C to +70°C
Dimensions of housing	approx. 212 x 168 x 43 mm
Weight	approx. 1090 g

## Type approvals

In compliance with	<b>CE</b> EMC	EN 301489-1/-9
	Radio	EN 300422-1/-2
	Safety	EN 60065
	<b>FC</b> 47 CFR 15	subpart B
Approved by	Industry Canada	RSS 210, IC: 2099A-G3 EM 100

# Manufacturer Declarations

## Warranty

Sennheiser electronic GmbH & Co. KG gives a warranty of 24 months on this product.

Additional warranty conditions can be found on our website at [www.sennheiser.com](http://www.sennheiser.com) under "Service & Support" and "Terms of Warranty".

## CE Declaration of Conformity

**CE** This device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. The declaration is available at [www.sennheiser.com](http://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.

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



Sennheiser electronic GmbH & Co. KG  
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