

HDA 300

Audiometric headphone



Instruction manual

Sensitivity level

on ear simulator with adapter (plate) and conical ring according to IEC 60318-1:2010*

on 6 ccm coupler according to IEC 60318-3:2010

Frequency in Hz	Mean value on B&K 4153 in dB re 1 Pa/V	Standard deviation in dB	Mean value on B&K 4152 in dB re 1 Pa/V	Standard deviation
63	34.9	0.58	24.5	1.08
80	35.6	0.75	27.2	0.90
100	36.1	0.58	29.1	0.68
125	36.1	0.88	30.5	0.52
160	37.2	0.40	31.7	0.41
200	38.0	0.31	32.5	0.29
250	38.0	0.67	33.1	0.44
315	38.6	0.77	34.2	0.27
400	38.2	1.03	35.3	0.22
500	37.2	1.05	36.3	0.22
630	35.4	0.75	37.5	0.28
750	33.5	0.61	38.2	0.41
800	32.7	0.53	38.4	0.34
1000	30.1	0.28	38.8	0.61
1250	27.5	0.37	37.4	0.62
1500	25.2	0.26	36.0	0.29
1600	24.3	0.33	35.3	0.20
2000	21.1	0.52	33.2	0.58
2500	20.3	0.54	32.0	0.42
3000	20.0	0.55	29.7	0.36
3150	19.8	0.55	29.0	0.29
4000	16.3	0.46	26.7	0.14
5000	26.1	0.20	27.0	0.36
6000	26.4	0.25	28.9	0.54
6300	26.7	0.36	28.3	0.54
8000	28.1	1.56	18.4	0.74
10000	19.4	0.43		
12000	24.1	0.81		
12500	20.2	0.68		
14000	17.5	1.04		
16000	16.1	0.85		

* measured with additional adapter for a quicker and more accurate positioning on coupler plate
This is optionally available from Sennheiser.

Measuring conditions

Temperature: 22 °C

Relative humidity: 50 %

Standards

Headphones comply with IEC 60645-1, IEC 60645-2, ANSI S3.6-2010

Reference equivalent threshold sound pressure level

on ear simulator with adapter (plate) and conical ring according to IEC 60318-1:2010

Frequency in Hz	Mean value on B&K 4153 in dB re 20 µPa	Standard deviation in dB	Median value *** on B&K 4153 in dB	Interquartile range in dB
125	26.2	3.9	27.0	5.5
250	20.1	3.1	20.0	4.0
500	8.6	4.0	8.0	3.5
750*	5.1		4.5	
1000	2.7	4.6	2.0	4.5
1500	3.2	7.1	3.0	6.5
2000	0.5	4.5	0.0	7.0
3000	-1.6	6.0	-3.0	7.5
4000	0.1	5.4	-0.5	5.5
5000	11.3	4.4	10.5	6.0
6000	20.9	7.2	21.0	7.5
8000	23.1	6.1	23.0	6.0
9000	27.1	5.4	27.5	7.0
10000	18.5	5.7	18.0	6.0
11200	22.9	5.6	22.0	8.5
12500	27.0	5.5	27.0	10.0
14000	32.8	6.9	33.5	7.5
16000	47.7	14.4	45.5	12.5

Reference equivalent threshold sound pressure level

on 6 ccm coupler according to IEC 60318-3:2010

Frequency in Hz	Mean value on B&K 4152 in dB re 20 µPa	Standard deviation in dB	Median value *** on B&K 4152 in dB	Interquartile range in dB
125	22.3	3.9	23.0	5.4
250	14.7	3.1	14.5	4.0
500	7.4	4.0	6.5	3.5
750*	9.5		9.0	
1000	11.0	4.6	10.5	4.0
1500	14.8	7.1	14.5	7.0
2000	12.3	4.5	12.0	7.0
3000	8.0	6.0	6.5	7.5
4000	10.0	5.4	9.5	5.5
5000	12.3	4.4	11.5	6.0
6000	23.0	7.2	23.0	7.5
8000	15.9	6.1	16.0	6.0

* interpolated values

*** rounded to nearest 0.5 dB

Difference between free-field sensitivity level G_f and ear simulator sensitivity level G_c on ear simulator with adapter (plate) and conical ring according to IEC 60318-1:2010

Frequency in Hz	Mean value on B&K 4153 in dB	Standard deviation in dB	Median value*** on B&K 4153 in dB	Interquartile range in dB
100**	-12.6		-12.0	
125	-12.2	4.4	-12.0	5.5
160*	-11.7		-11.5	
200*	-11.3		-11.5	
250	-10.9	3.9	-11.5	4.5
315*	-10.9		-11.0	
400	-11.0	4.3	-10.0	7.0
500	-7.8	3.5	-7.5	3.5
630*	-5.4		-5.0	
800*	-3.0		-3.0	
1000	-0.8	3.4	-1.0	3.5
1250	0.3	4.7	0.0	6.0
1600	-0.7	3.2	-0.5	5.5
2000	-2.1	4.0	-2.0	7.0
2500	-3.0	3.0	-3.0	3.0
3150	-5.2	3.1	-6.0	4.0
4000	-5.4	3.3	-4.5	6.0
5000	-11.7	3.3	-10.5	2.5
6300	-7.5	3.9	-7.0	6.0
8000	-10.1	4.5	-10.0	7.0

Difference between free-field sensitivity level G_f and coupler sensitivity level G_c on 6 ccm coupler according to IEC 60318-3:2010

Frequency in Hz	Mean value on B&K 4152 in dB	Standard deviation in dB	Median value*** on B&K 4152 in dB	Interquartile range in dB
100**	-5.8		-5.0	
125	-5.8	4.4	-5.5	5.5
160*	-5.7		-5.5	
200*	-5.6		-6.0	
250	-5.6	3.9	-6.0	5.0
315*	-6.3		-6.0	
400	-7.1	4.3	-6.0	7.0
500	-5.7	3.5	-5.0	3.5
630*	-7.2		-7.0	
800*	-8.7		-8.5	
1000	-10.2	3.4	-10.5	4.0
1250	-11.3	4.7	-11.5	6.0
1600	-13.4	3.2	-13.5	5.0
2000	-14.8	4.0	-15.0	5.5
2500	-15.2	3.0	-15.0	3.0
3150	-14.6	3.1	-15.5	4.0
4000	-14.0	3.3	-13.0	6.0
5000	-13.5	3.3	-12.0	2.0
6300	-9.2	3.9	-8.5	6.0
8000	-3.3	4.5	-3.0	7.0

- * interpolated values
- ** extrapolated value
- *** rounded to nearest 0.5 dB

Passive Attenuation

according to ISO 4869-1:1994 / EN 24869-1:1993

Frequency in Hz	Mean value in dB
63	12.5
125	12.4
250	12.7
500	9.4
1000	12.8
2000	15.1
4000	28.8
8000	26.2

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Important safety information

- ▶ Read this instruction manual carefully and completely before using the product.
- ▶ Always include this instruction manual when passing the product on to third parties.
- ▶ Do not use an obviously defective product.

Preventing damage to health and accidents

- ▶ For reasons of hygiene, never use the headphones on broken skin.
- ▶ Reduce the volume before using the headphones. To prevent hearing damage, avoid listening to music at high volumes over a longer period of time.
- ▶ Always maintain a distance of at least 3.94" (10 cm) between the ear caps and the cardiac pacemaker or implanted defibrillator since the product generates permanent magnetic fields.
- ▶ Keep the product, accessories and packaging parts out of reach of children and pets to prevent accidents and choking hazards.

Preventing damage to the product and malfunctions

- ▶ Always keep the product dry and do not expose it to extreme temperatures (hairdryer, heater, extended exposure to sunlight, etc.) to avoid corrosion or deformation.
- ▶ Reduce the volume before using the headphones.
- ▶ To prevent hearing damage, avoid listening to music at high volumes over a longer period of time
- ▶ Only use attachments/accessories supplied or recommended by Sennheiser.
- ▶ Only clean the product with a soft, dry cloth. The headband paddings and the ear pads can be cleaned with disinfectants recommended by Sennheiser (see page 7).

Intended use/Liability

The HDA 300 is a pair of closed, dynamic headphones designed for use with audiometers. The headphones are also suitable for high frequency audiometry.

This product can be used for commercial purposes.

It is considered improper use when this product is used for any application not named in this instruction manual.

Sennheiser does not accept liability for damage arising from abuse or misuse of this product and its attachments/accessories.

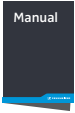
Package contents



HDA 300 headphones



HZH 350 hygiene pads



Instruction manual

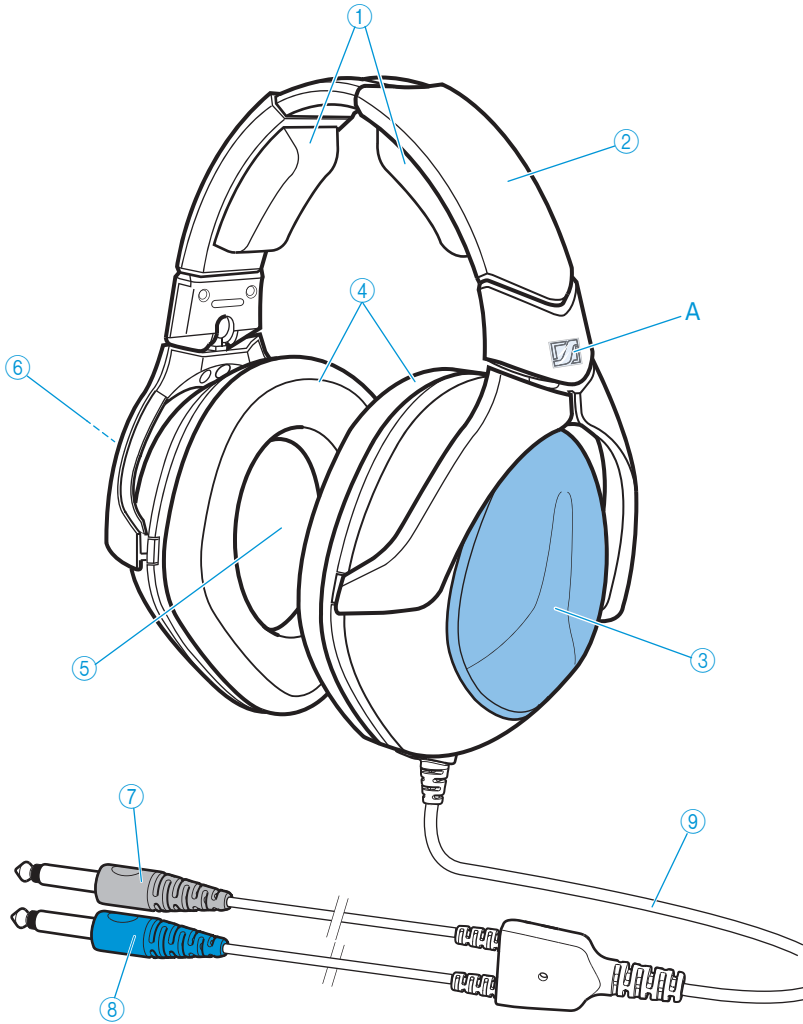


A list of accessories can be found on the HDA 300 product page at www.sennheiser.com. For information on suppliers, contact your local Sennheiser partner: www.sennheiser.com > "Service & Support".

Some of the available accessories:

- HZH 350 hygiene pads
- Ear pads for the HDA 300
- Diaphragm covers for the HDA 300
- Open-ended connection cable for the HDA 300
- XL headband paddings for small head sizes

Product overview



- ① Headband padding
- ② Headband
- ③ Ear cap, left (blue)
- ④ Ear pad
- ⑤ Diaphragm cover
- ⑥ Ear cap, right (red)
- ⑦ Plug, right (red)
- ⑧ Plug, left (blue)
- ⑨ Connection cable

► Before wearing the headphones, remove the protective foil **A** from the Sennheiser logo.

Connecting the HDA 300 to an audiometer and calibrating the audiometer

In order to obtain accurate measurements, the audiometer has to be re-calibrated on a regular basis and each time the audiometric headphones are exchanged. This is necessary even if you change the climatic conditions.

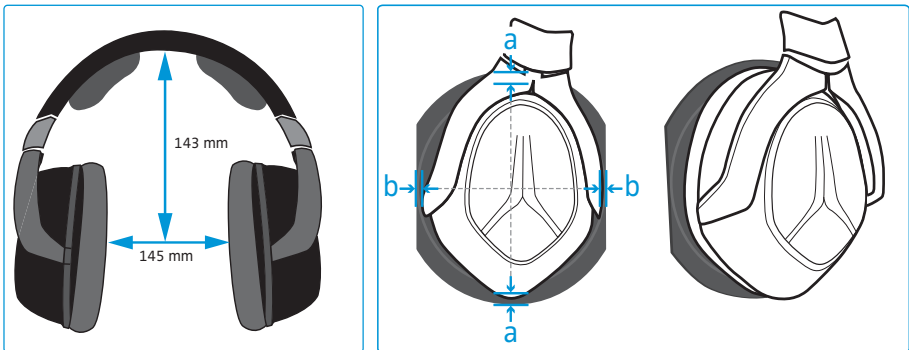
Connecting the HDA 300

- ▶ Connect the red plug of the headphones to the right channel and the blue plug to the left channel of the audiometer.
- ▶ Have an authorized specialist calibrate the audiometer together with the HDA 300.

Preparing the HDA 300 for calibration

You can find the appropriate reference threshold sound pressure levels on the fold-out page of the cover or at www.sennheiser.com on the product page for the HDA 300.

- 1 Adjust the HDA 300 as shown in the diagram.
- 2 Place the ear cap on the middle of the coupler so the distance to the top, bottom, left and right is identical.



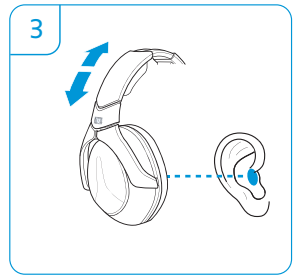
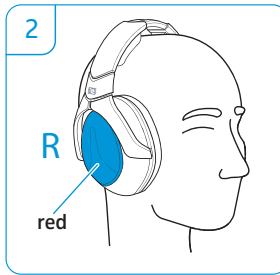
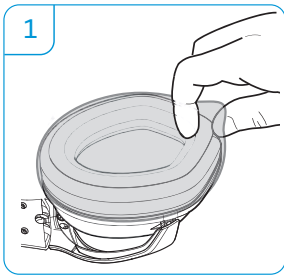
Storing the HDA 300

- ▶ Do not store the headphones stretched out for long periods as this can widen the headband and reduce the contact pressure of the headphones.
- ▶ Make sure that the headphone cable does not cross any passageway to avoid anyone tripping over the cable.
- ▶ Handle the headphones and the cable with care. Do not twist, damage or kink the cable.

Using the HDA 300

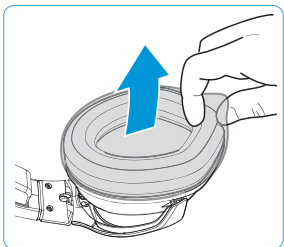
- 1 Pull new hygiene pads over the ear pads.
- 2 Take off glasses, earrings and similar objects which could interfere with the fit of the headphones. Put the headphones on the test person so that the red ear cap covers the right ear.
- 3 Adjust the headphones so that
 - the ears are completely inside the ear pads,
 - the test person feels even, gentle pressure around his or her ears,
 - a snug fit of the headband on the head is ensured.

If the headband cannot be adjusted smaller to fit the head (see page 8), use the XL headband paddings for small head sizes (available as accessories).



To ensure hygienic use:

- ▶ Remove the (disposable) hygiene pads and dispose of them.



- ▶ Disinfect the product regularly as instructed by the hygiene specialist (see next section).

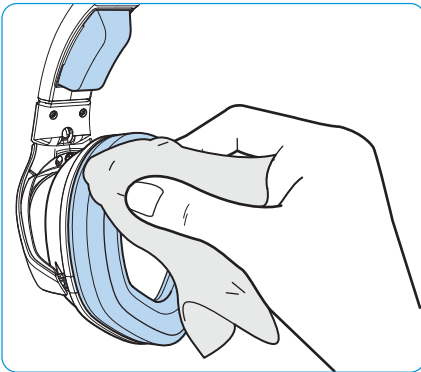
Cleaning and maintaining the HDA 300

CAUTION

Liquids can damage the electronics of the product!

Liquids entering the housing can cause corrosion.

- ▶ Keep all liquids far away from the product.
 - ▶ Only clean the headband paddings and the ear pads with cleansing agents recommended by Sennheiser.
 - ▶ Do not spray disinfectants directly on the product. Spray the disinfectant on to a suitable cloth.
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- ▶ Clean the ear pads and the headband padding with a cloth according to the instructions from the manufacturer of the cleansing agent.



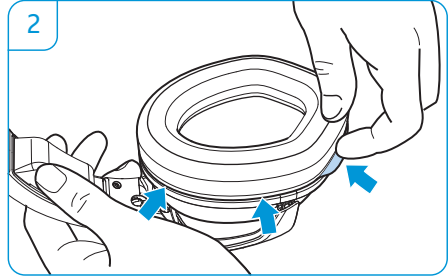
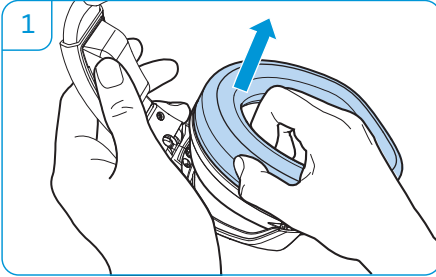
Recommended cleansing agents and disinfectants for the ear pads and headband padding:

Manufacturer	Suitable product
Bode	Bacillol AF, Bacillol Tissues
Dreve	OtoVita Cleaning Spray, OtoVita Cleaning Wipes
Egger	Cedis, Cedis med WB, Cedis N-Pro Cleansing Spray/Tissues
Reckitt Benckiser	Sagrotan hygiene spray, Sagrotan hygiene cleaner

- ▶ Observe the manufacturer’s instructions. Let the product dry before using it.
- ▶ Replace the diaphragm cover, the ear pads and the headband padding regularly as instructed by the hygiene specialist (see next section).

Replacing the ear pads

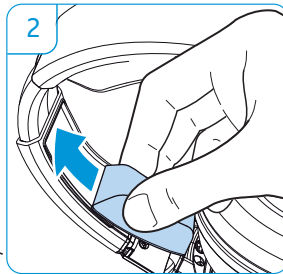
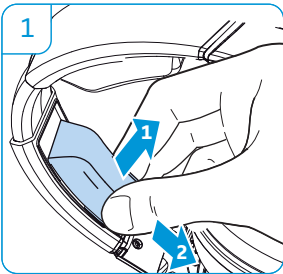
- 1 Peel the ear pad up and away from the ear cap.
- 2 Slide the new ear pad onto the ear cap. Make sure that the edge of the ear pad disappears completely in the provided groove.



Replacing the headband paddings

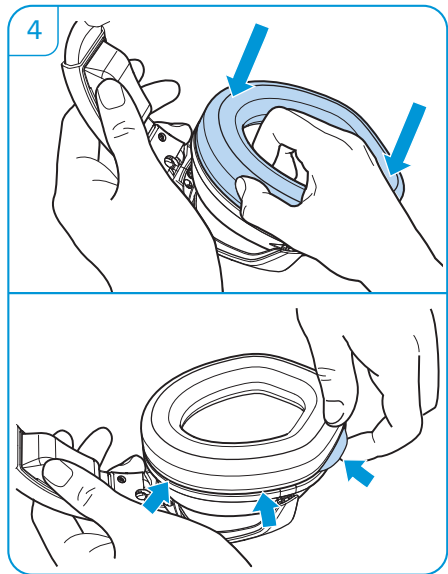
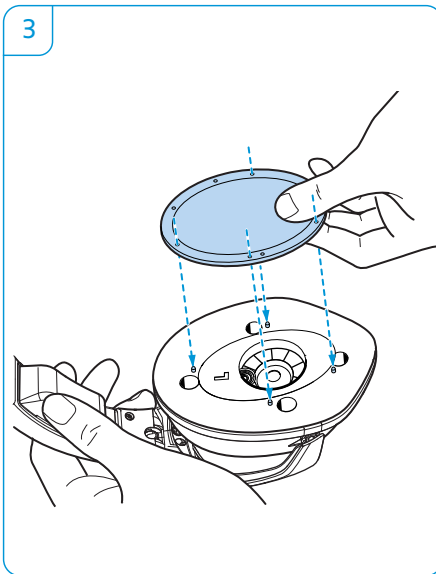
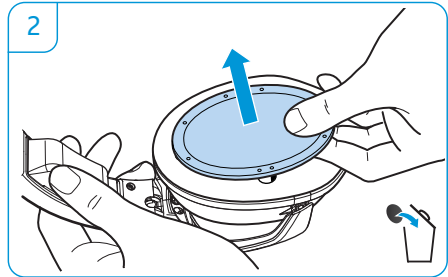
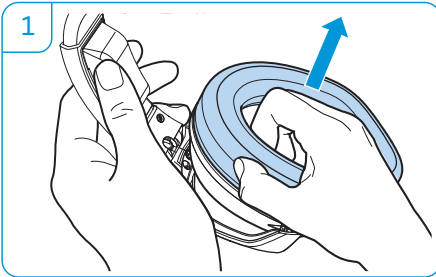
Replace the headband paddings if you require another size. XL headband paddings for small head sizes are available as accessories.

- 1 Lift the headband padding slightly on one end and carefully slide it out of its holder on the headband towards the ear caps.
- 2 Slide the new or other headband padding into the holder. Repeat for the second headband padding.



Replacing the diaphragm cover

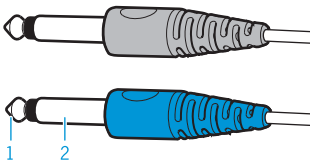
- 1 Remove the ear pad from the ear cap.
- 2 Remove the diaphragm cover and dispose of it.
- 3 Place the new diaphragm cover so that four of the holes in the diaphragm cover are positioned over the four retaining pins on the ear cap. If the retaining pins do not fit into the holes, rotate the diaphragm cover 180°.
- 4 Pull the ear pad onto the ear cap. The edge of the ear pad should disappear completely into the provided groove.



Specifications

Frequency response	20 – 20,000 Hz
Transducer principle	dynamic, closed
Nominal impedance	23 Ω
Characteristic SPL	117 dB at 1 kHz, 0.5 V
Max. nominal continuous input power	500 mW (in accordance with EN 60268-7)
Max input voltage	3.5 V, < 10 min
Ear coupling	circumaural
Contact pressure	8.8 N \pm 0.5 N
Weight (with cable)	approx. 490 g
Connection cable	approx. 2.2 m, single-sided

Pin assignment of the 6.35 mm jack plug (mono)



Red plug = right side of the headphone

1 Audio High (red wire)

2 Audio Low (blue wire)

Blue plug = left side of the headphone

1 Audio High (yellow wire)

2 Audio Low (green wire)

Manufacturer declarations

Warranty

Sennheiser GmbH & Co. KG gives a warranty of 24 months on this product. For the current warranty conditions, please visit our website at www.sennheiser.com or contact your Sennheiser partner.

CE Declaration of Conformity

- RoHS Directive (2011/65/EC)

The declaration is available at www.sennheiser.com.

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



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