AURICAL SpeechLink 100

AURICAL SpeechLink 100 Reference Manual

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Technical support
Please contact your supplier.

Contents

1 Introduction to AURICAL SpeechLink 100

1.1 AURICAL SpeechLink 100 7
1.1.1 Intended use 8
1.1.2 AURICAL SpeechLink 100 interfacing with OTOsuite Visible Speech Module 8
1.1.3 Bluetooth 8
1.2 About this manual 8
1.2.1 Installation 9
1.2.2 Safety 9
1.2.3 Training 9
1.3 Typographical conventions 9
1.3.1 Navigation 10

2 When you receive AURICAL SpeechLink 100

2.1 Unpacking 11
2.2 Storing SpeechLink 100 11
2.3 Views of SpeechLink 100 and charger 12
2.3.1 Front view 13
2.3.2 Reverse side view 14
2.3.3 The charger 15
2.3.4 The probes 16
2.4 Assembly and installation 16
2.4.1 Location 17
2.4.2 Charger assembly 17
2.4.3 Mounting the NOAHlink charger on the AURICAL SpeechLink 100 charger base plate19
2.4.4 SpeechLink and probe assembly 20
2.4.5 Fitting SpeechLink 100 with NOAHlink 23
2.4.6 Fitting SpeechLink 100 with counterweights 25
2.5 Powering 25
2.5.1 Powering AURICAL SpeechLink 100 26
2.5.2 Powering the charger 26
2.5.3 Batteries 27
2.5.4 Inserting the battery 27

2.5.5 Switching on SpeechLink 100 28
2.5.6 Switching off SpeechLink 100 29
2.5.7 Charging SpeechLink 100 29
2.5.8 *Powering status* *30*
2.6 Communication with the OTOsuite Visible Speech Module via Bluetooth 31

3 Preparing AURICAL SpeechLink 100 for testing

3.1 Preparing AURICAL SpeechLink 100 33
3.2 Preparing for tube calibration 33

4 Service and Maintenance - AURICAL SpeechLink 100

4.1 Equipment failure 35
4.2 Service and repair 35
4.3 Maintenance 36
4.3.1 Calibration 37
4.3.2 Replacing a probe 37
4.3.3 Replacing an ear cord 37
4.4 Troubleshooting 38
4.4.1 Powering problems 38

5 AURICAL SpeechLink 100 Safety

5.1 Symbols used 39
5.1.1 AURICAL SpeechLink 100 symbols 39
5.1.2 Charger unit symbols 40
5.2 Warning notes 41
5.2.1 AURICAL SpeechLink 100 warning notes 41
5.2.2 Charger unit warning notes 43
5.3 Manufacturer 43
5.3.1 Responsibility of the manufacturer 43

6 Technical Specifications - AURICAL SpeechLink 100

6.1 AURICAL SpeechLink 100 45
6.1.1 Interface 45
6.1.2 Type identification 45
6.1.3 Power supply 45

6.2 Charger unit 45
6.3 Power adaptor 46
6.4 Operating environment 46
6.5 Storing and handling 46
6.6 Dimensions 46
6.7 Weight 47
6.8 Standards 47

7 Index

1 Introduction to AURICAL SpeechLink 100

- 1.1 AURICAL SpeechLink 100, p. 7
- 1.2 About this manual, p. 8
- 1.3 Typographical conventions, p. 9

1.1 AURICAL SpeechLink 100

- 1.1.1 Intended use, p. 8
- 1.1.2 AURICAL SpeechLink 100 interfacing with OTOsuite Visible Speech Module, p. 8
- 1.1.3 Bluetooth, p. 8

Thank you for purchasing AURICAL SpeechLink 100.

SpeechLink 100 is a desktop or wall-mounted advanced 4-channel frequency analyzer that wirelessly transfers measurement data to a PC via Bluetooth. The four channels are used for measuring the sound pressure level close to a client's eardrum as well as outside the ear by the pinna for both ears simultaneously. In this way, SpeechLink 100 enables you to perform true binaural measurements providing you with valuable information when you adjust Hearing Instrument settings in the suppliers' fitting software.

SpeechLink 100 cannot be used without the OTOsuite Visible Speech Module PC application. When you have set up SpeechLink 100 for testing, install the relevant software on your PC. When the PC application has been installed, run the Configuration Wizard and you will be able to connect to SpeechLink 100. For specific instructions on how to use SpeechLink 100 with the OTOsuite Visible Speech Module, please see the OTOsuite Visible Speech Module Online Help.

SpeechLink 100 integrates closely with the latest generation of GN Otometrics test devices by offering real time presentation of test results and full test control directly from a PC with comprehensive user interface.

1.1.1 Intended use

SpeechLink 100 is intended for audiologists, hearing instrument dispensers, ENTs, speech therapists and other health care professionals. The intended use is that the user is able to visualize the amplified signal recorded in the ear(s) of persons with a hearing loss in order for the user to have an objective basis for adjusting the Hearing Instrument settings. Note also that SpeechLink 100 is designed for use in combination with NOAHlink - HIMSA's wireless hearing instrument programming device. See Section 2.4.5, 'Fitting SpeechLink 100 with NOAHlink" on page 23.

1.1.2 AURICAL SpeechLink 100 interfacing with OTOsuite Visible Speech Module

OTOsuite Visible Speech Module is designed to operate with AURICAL SpeechLink 100 as the test device (produced by GN Otometrics A/S.

AURICAL SpeechLink 100 is a compact device, which offers a complete range of test capabilities for Speech Mapping. AURICAL SpeechLink 100 is controlled directly from the OTOsuite Visible Speech Module software program.

1.1.3 Bluetooth

SpeechLink 100 connects with the OTOsuite Visible Speech Module via Bluetooth™. Bluetooth is a wireless communication standard, which allows devices such as computers, PDAs, mobile phones and headsets to communicate and send data to each other in real-time, without the need for wires or cables to link together the devices. Devices can typically communicate at ranges of up to 10 metres (approx. 33 ft).

1.2 About this manual

This Reference Manual is your guide to installing, calibrating and using AURICAL SpeechLink 100. The key features of the device as well as working scenarios for performing tests and viewing and printing test results are described in detail in the OTOsuite Visible Speech Module online help.

We strongly recommend that you read this Reference Manual carefully before using your SpeechLink 100 for the first time.

The Reference Manual contains a description of the main functions of SpeechLink 100. GN Otometrics recommends that you make yourself familiar with the following issues:

- 1.2.1 Installation, p. 9
- 1.2.2 Safety, p. 9
- 1.2.3 Training, p. 9

1.2.1 Installation

Section 2.1, 'Unpacking" on page 11 and Section 2.4, 'Assembly and installation" on page 16 contain a full description of unpacking instructions, and how to install the software program.

1.2.2 Safety

This Reference Manual contains information which must be followed to ensure the safe performance of SpeechLink 100. Local government rules and regulations, if applicable, should also be followed at all times.

Safety information is stated where it is relevant, and general safety aspects are described in Section 5, 'AURICAL SpeechLink 100 Safety" on page 39.

1.2.3 Training

It is recommended that you read this Reference Manual and try out test scenarios in the OTOsuite Visible Speech Module Reference Manual before you start operating SpeechLink 100 so that you are familiar with both the device and the software program before testing a patient.

- 1.3 Typographical conventions, p. 9

1.3 Typographical conventions

The use of WARNING, CAUTION and NOTE
For safety reasons and appropriate use of the SpeechLink 100, the manual contains **WARNINGS**, **CAUTIONS** and **NOTES**, which you should read carefully. The use of these headings is denoted as follows:

WARNING:
A warning indicates that there is a risk of danger to persons and data.

Caution:
Caution indicates that there is a risk of damage to data.

Note:
A note indicates that you should take special notice.

1.3.1 Navigation

When you navigate the software related to this test device, in the .pdf version of the manual, menus, icons and functions to select are shown in bold type, as for instance in:

- Click the **Measurement Settings** icon on the toolbar or select **Measurements > Settings...**
- Chapter 2, “When you receive AURICAL SpeechLink 100” on page 11

2 When you receive AURICAL SpeechLink 100

- Section 2.1, ‘Unpacking” on page 11
- Section 2.2, ‘Storing SpeechLink 100” on page 11
- Section 2.3, ‘Views of SpeechLink 100 and charger” on page 12
- Section 2.4, ‘Assembly and installation” on page 16
- Section 2.5, ‘Powering” on page 25
- Section 2.6, ‘Communication with the OTOsuite Visible Speech Module via Bluetooth” on page 31

2.1 Unpacking

1. Unpack your SpeechLink 100 carefully.

   When you unpack SpeechLink 100, it is a good idea to keep the packing material in which it was delivered. If you need to send the SpeechLink 100 in for service, the original packing material will protect against damage during transport, etc.

2. Inspect the equipment for possible visual damage.

   If damage has occurred, do not put the SpeechLink 100 into operation. Contact your supplier for assistance.

3. Check with the list accompanying the package to make sure that you have received all necessary parts and accessories. If your package is incomplete, contact your supplier.

- Section 2.2, ‘Storing SpeechLink 100” on page 11

2.2 Storing SpeechLink 100

If you need to store SpeechLink 100 before you put it into operation, follow the guidelines below:

- Store SpeechLink 100 and accessories in the box provided to protect the equipment from damage.
- Store SpeechLink 100 as stated in the Technical Specifications, Section 6.5, ‘Storing and handling” on page 46.

For views of SpeechLink 100 go to Section 2.3, ‘Views of SpeechLink 100 and charger” on page 12

2.3 Views of SpeechLink 100 and charger

- Section 2.4, ‘Assembly and installation” on page 16

This section provides you with views of SpeechLink 100 and its charger from various angles

Section 2.3.1, ‘Front view” on page 13

Section 2.3.2, ‘Reverse side view” on page 14

Section 2.3.3, ‘The charger” on page 15

Section 2.3.4, ‘The probes” on page 16

SpeechLink 100 is designed to be placed around the shoulders of the client. It consists of a main unit and two REM probes which are supplied with the unit. When not in use, it should be placed either in its desktop or wall-mounted charger.

SpeechLink 100 is supplied partly assembled. To complete the assembly, see

Section 2.4.2, ‘Charger assembly” on page 17,

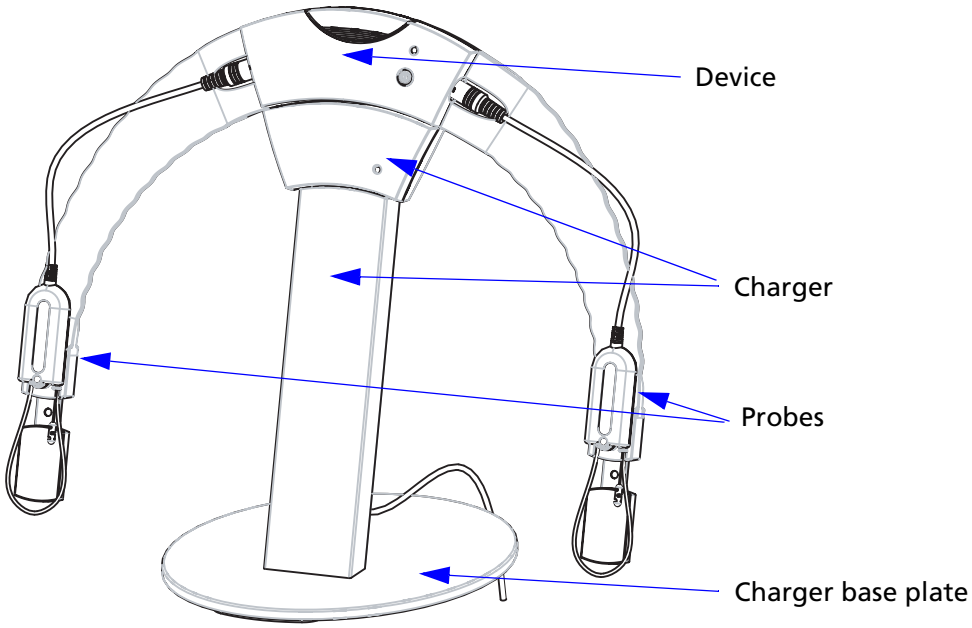
Section 2.4.3, ‘Mounting the NOAHlink charger on the AURICAL SpeechLink 100 charger base plate” on page 19,

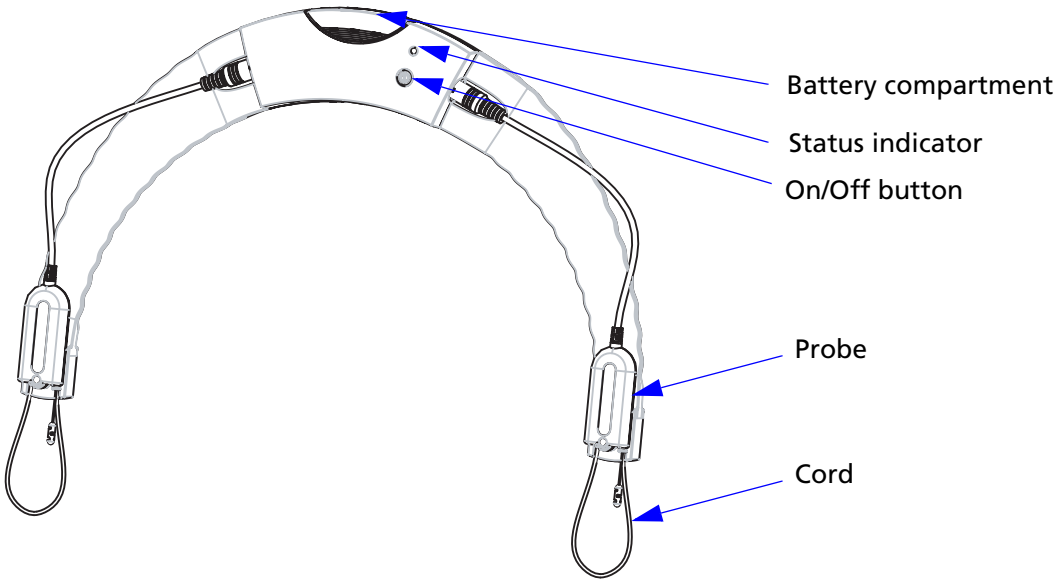
Section 2.4.4, ‘SpeechLink and probe assembly” on page 20, and

Section 2.4.5, ‘Fitting SpeechLink 100 with NOAHlink” on page 23.

Section 2.4.6, ‘Fitting SpeechLink 100 with counterweights” on page 25.

2.3.1 Front view



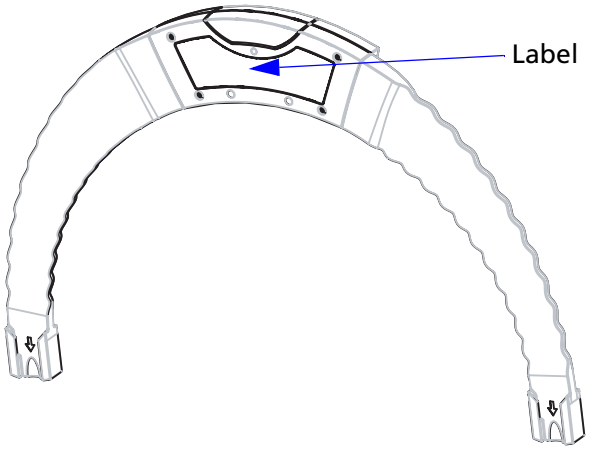


Section 2.3.2, ‘Reverse side view” on page 14

Section 2.3.3, ‘The charger” on page 15

Section 2.3.4, ‘The probes” on page 16

2.3.2 Reverse side view

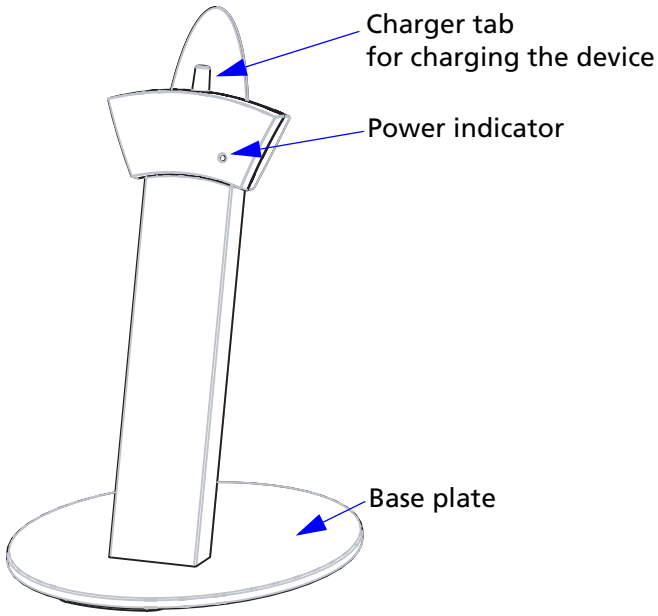


Section 2.3.3, ‘The charger” on page 15

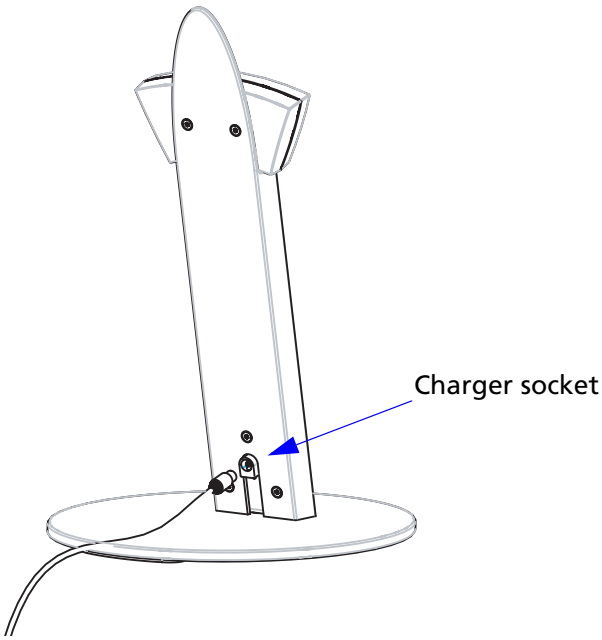
Section 2.3.4, ‘The probes” on page 16

2.3.3 The charger

Front view

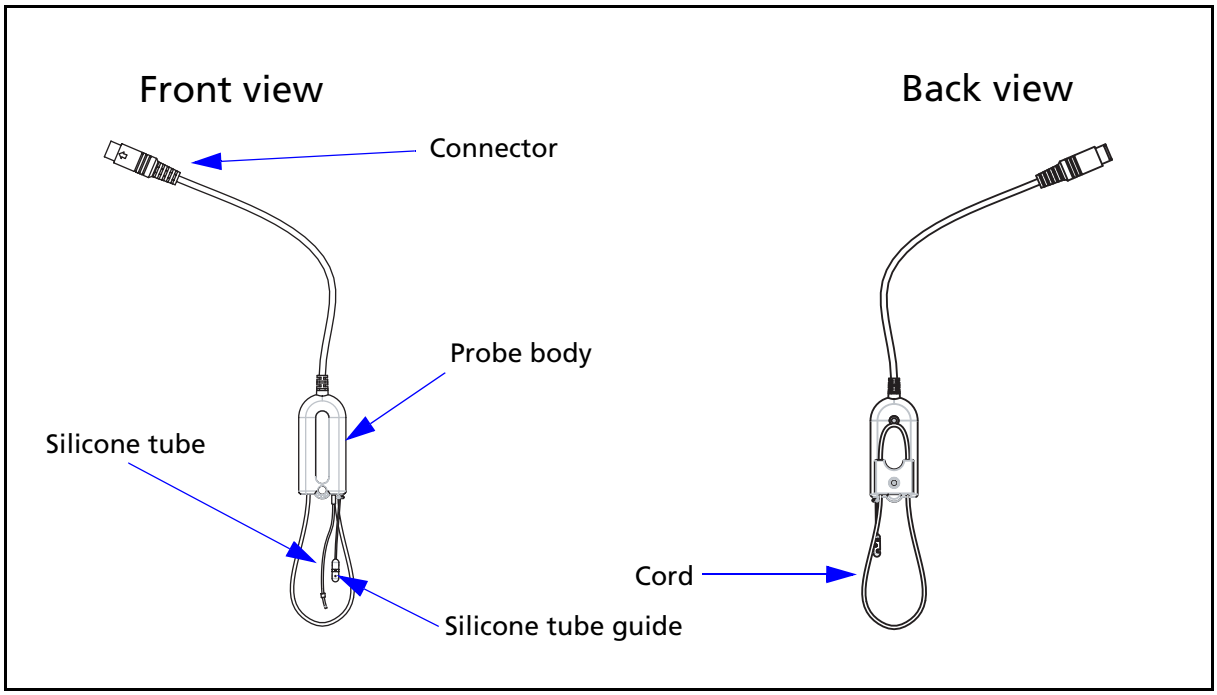


Rear view



Section 2.3.2, ‘Reverse side view” on page 14
Section 2.3.3, ‘The charger” on page 15
Section 2.3.4, ‘The probes” on page 16

2.3.4 The probes



2.4 Assembly and installation

This section provides you with:

Instructions on how to assemble the charger

- Section 2.4.2, 'Charger assembly" on page 17
- Section 2.4.3, 'Mounting the NOAHlink charger on the AURICAL SpeechLink 100 charger base plate" on page 19

Instructions on how to assemble the probe and tube

- Section 2.4.4, 'SpeechLink and probe assembly" on page 20
- Section 2.4.5, 'Fitting SpeechLink 100 with NOAHlink" on page 23
- Section 2.4.6, 'Fitting SpeechLink 100 with counterweights" on page 25

Powering instructions

- Section 2.5, 'Powering" on page 25

2.4.1 Location

A sound cabin or sound treated room is not necessary, but it is recommended that you use a room where reverberation time is not too long.

To ensure safe performance, the SpeechLink 100 must be correctly installed and the requirements listed in Chapter 5, "AURICAL SpeechLink 100 Safety" on page 39 and Chapter 6, "Technical Specifications - AURICAL SpeechLink 100" on page 45 must be complied with.

WARNING:
Always keep the charger cradle away from the patient area.

Apart from the above warning, the SpeechLink 100 can be used with no specific requirements to location. However, keep SpeechLink 100 away from all liquids and sources of heat (for detailed specifications, see Section 6.4, 'Operating environment" on page 46.

2.4.2 Charger assembly

Mount the charger on the base plate. You can choose between the base plate for desktop use, or the base plate for wall-mounting. See

- "Base plate assembly" on page 17
- "Wall mount installation" on page 19

For use with NOAHlink, you can mount the NOAHlink charger on the SpeechLink 100 base plate. See

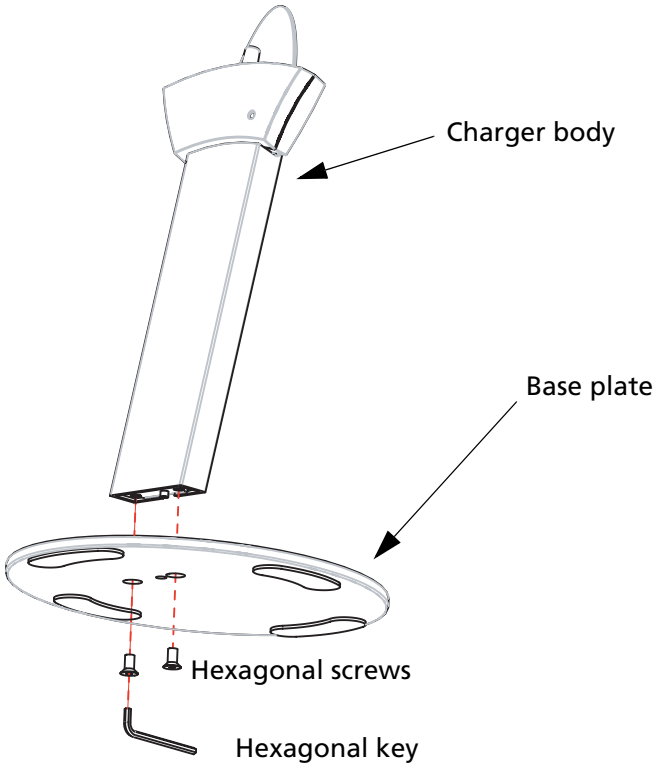
- "Mounting the NOAHlink charger on the AURICAL SpeechLink 100 charger base plate" on page 19

Base plate assembly

Mount the charger on the charger base as shown below. This procedure applies both to desktop and wall mounting solutions.

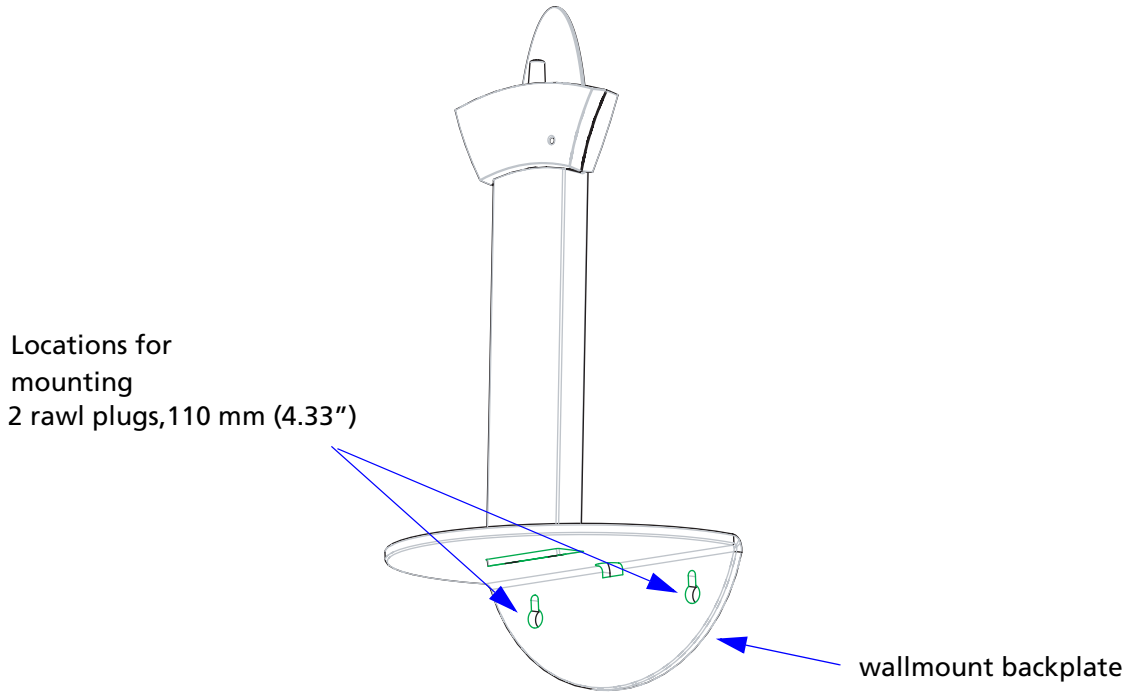
For wall mounting purposes, mount the wall mount base plate on the wall mount back plate. See "Wall mount installation" on page 19.

1. Use the hexagonal key to screw the hexagonal screws into place as shown below.



2. Make sure that you tighten the screws well so that the charger is stable when you place SpeechLink 100 in the charger.

Wall mount installation



1. Drill 2 x 6 mm diameter holes 110 mm (4.33") apart.
2. Insert rawl plugs.
3. Fit the screws through the backplate of the wallmount.

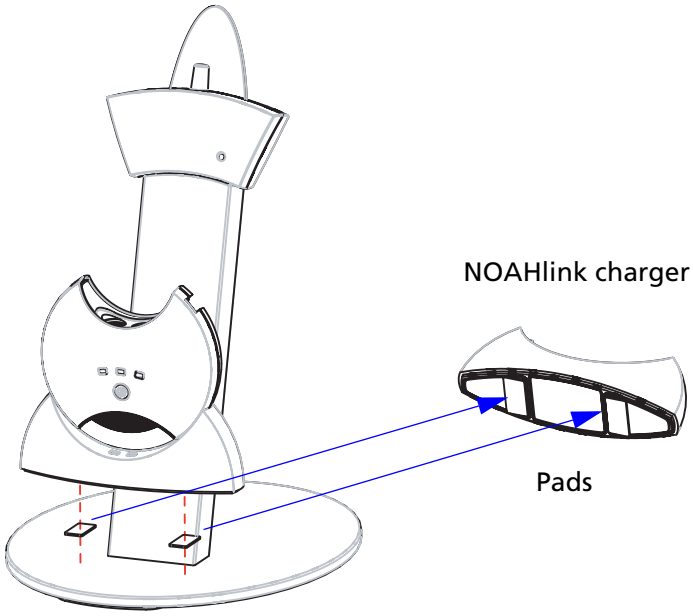
2.4.3 Mounting the NOAHlink charger on the AURICAL SpeechLink 100 charger base plate

If you plan to use AURICAL SpeechLink 100 with NOAHlink (HIMSA’s product for hearing instrument fitting), you can attach NOAHlink to AURICAL SpeechLink 100.

Start by mounting the NOAHlink charger on the base plate of the AURICAL SpeechLink 100 charger. See the following description.

1. Fix the mounting pads supplied with AURICAL SpeechLink 100 on the bottom of the NOAHlink charger.

2. Remove the protective foil from the two adhesive pads and carefully place the NOAHlink charger on the AURICAL SpeechLink 100 base plate as shown below.



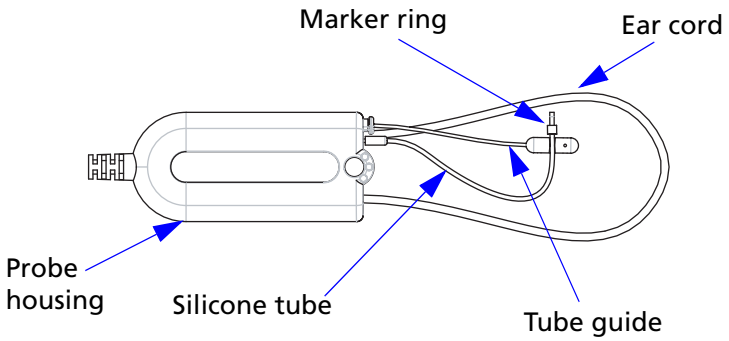
3. For testing purposes you can fit NOAHlink on the AURICAL SpeechLink 100 shoulder strap. See Section 2.4.5, 'Fitting SpeechLink 100 with NOAHlink" on page 23.

2.4.4 SpeechLink and probe assembly

The SpeechLink 100 is designed for easy attachment of the probe(s) used during the test.

Fitting silicone tubes on the probes

A bag of silicone tubes is supplied together with SpeechLink 100. The silicone tube is used for probe microphone measurement, where it is inserted into the ear canal together with the hearing instrument. The silicone tube has a black marker ring for marking how far into the ear canal the tube should be inserted.

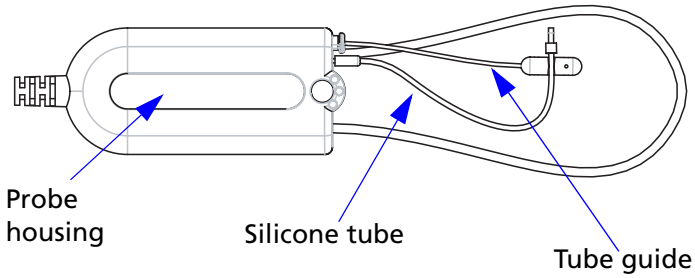


1. For test purposes fit a silicone tube to the thin metal tube at the top of the probe housing. Gently push and twist the silicone tube down as far as possible over the metal tube.

   It is much easier to fit and remove the silicone tube if you twist it gently. When you do so, make sure that you hold the probe by the probe housing and not by the cable.

Note:
Accurate testing is only guaranteed if you use the silicone tubes designed specifically for SpeechLink 100 by GN Otometrics A/S.

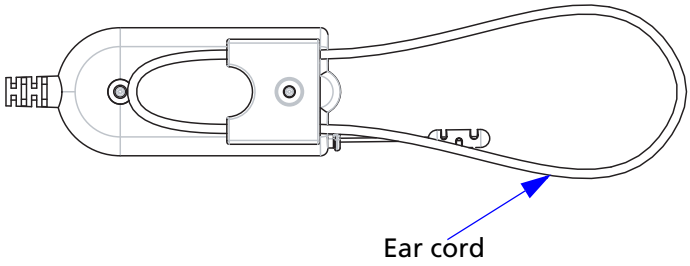
2. Repeat for the second probe housing, if required.



3. A tube guide can be attached to each probe. The tube guide is designed to hold the silicone tube in place in the ear. Five tube guides are supplied with SpeechLink 100.

   The tube guide are easily to remove or replace: Grip the tube guide by the base and pull.

4. To adjust the ear cord simply pull to correct length for a comfortable fit over the client's ear.

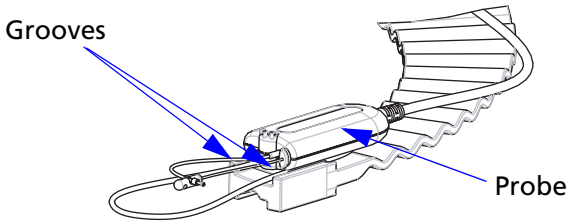


5. Repeat for the second probe housing, if required.

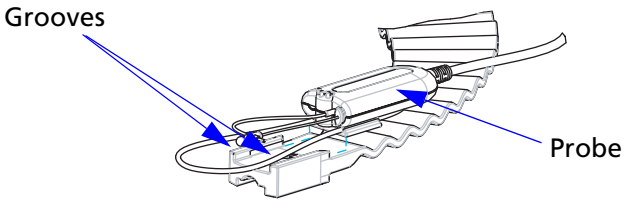
Fitting the probes on the SpeechLink 100 shoulder strap

When the probes are not fitted on the ears of the client, they are best kept on the shoulder strap of SpeechLink 100 for safe keeping.

1. Place SpeechLink 100 face up.
2. With the ear cord facing downwards, slide the probe housing into the grooves at the end of the shoulder strap.
3. Repeat for the second probe housing, if required.



4. To remove the probe housing, simply pull it out of the grooves.

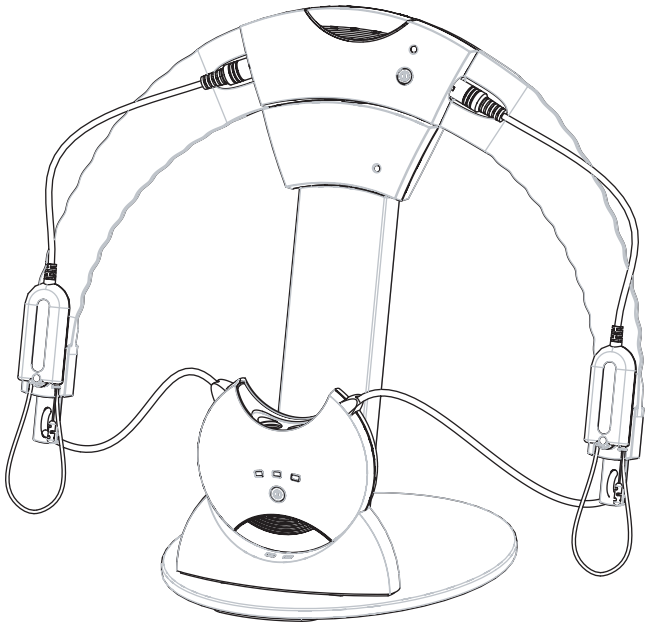


2.4.5 Fitting SpeechLink 100 with NOAHlink

If you use AURICAL SpeechLink 100 with NOAHlink (HIMSA's product for hearing instrument fitting), attach NOAHlink to AURICAL SpeechLink 100. See the following description.

When AURICAL SpeechLink 100 and NOAHlink are not in use, they should each be placed in their charger cradle for charging. You can mount the NOAHlink charger on the AURICAL SpeechLink 100 charger. See Section 2.4.3, 'Mounting the NOAHlink charger on the AURICAL SpeechLink 100 charger base plate" on page 19.

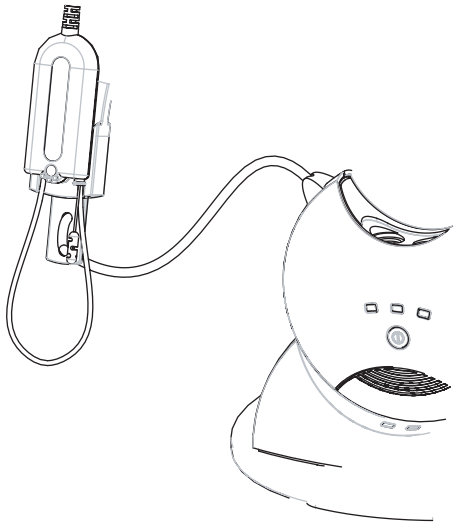
Fitting NOAHlink



To attach NOAHlink to AURICAL SpeechLink 100, do as follows:

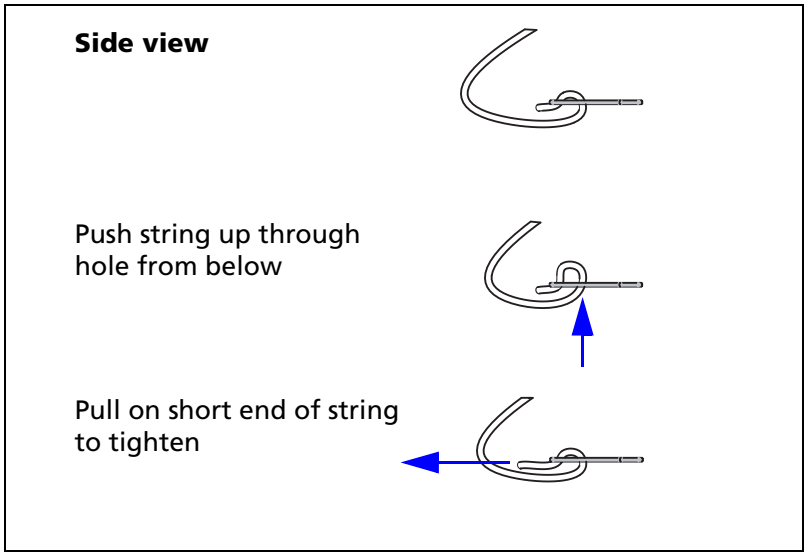
1. Remove the NOAHlink neck string from NOAHlink.

2. Attach the blue and red NOAHlink plastic attachment buttons on the end of the NOAHlink strap to NOAHlink.



Adjusting the NOAHlink straps

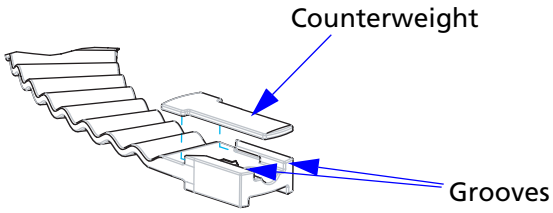
The length of the NOAHlink strap can be adjusted, if required. To adjust the length of the strap, pull the string loop to loosen the string and then pull at either the end of the string or NOAHlink until the length is appropriate.



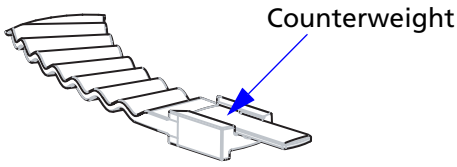
2.4.6 Fitting SpeechLink 100 with counterweights

If you use AURICAL SpeechLink 100 without NOAHlink, attach the counterweights to AURICAL SpeechLink 100. See the following description. This will balance the weight of AURICAL SpeechLink 100 when it is placed on the shoulders of the client, to keep it from sliding off.

1. Place SpeechLink 100 facing downwards.



2. Slide the counterweight into the grooves at the end of the shoulder strap.



3. Repeat with the second counterweight.

Removing the counterweights

- To remove the counterweight, simply lift it out of the grooves.

2.5 Powering

- 2.5.1 ´Powering AURICAL SpeechLink 100' on page 2.5.1.26
- 2.5.2 ´Powering the charger' on page 2.5.2.26
- 2.5.3 ´Batteries' on page 2.5.3.27
- 2.5.4 ´Inserting the battery' on page 2.5.4.27
- 2.5.5 ´Switching on SpeechLink 100' on page 2.5.5.28
- 2.5.6 ´Switching off SpeechLink 100' on page 2.5.6.29
- 2.5.7 ´Charging SpeechLink 100' on page 2.5.7.29
- 2.5.8 ´Powering status' on page 2.5.8.30

2.5.1 Powering AURICAL SpeechLink 100

Device

- AURICAL SpeechLink 100 device is powered by a battery. See 2.5.3 Batteries, p. 27.

Charger

- The SpeechLink 100 charger is connected to a mains adapter, which is connected to the electrical power outlet. See 2.5.2 Powering the charger, p. 26.

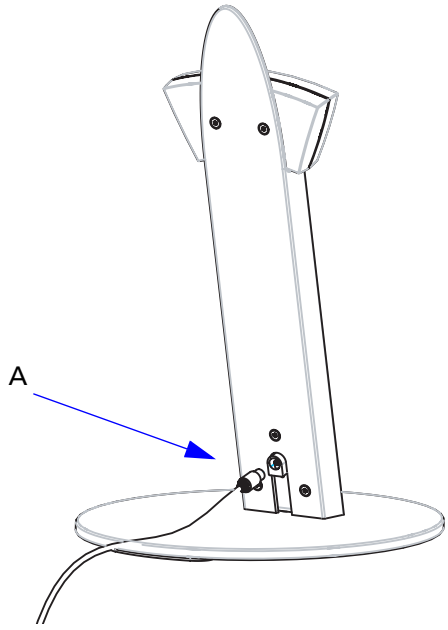
It is recommended that you leave the SpeechLink 100 in the charger when you are not using it so that the device is always ready for use.

See the following descriptions for powering.

2.5.2 Powering the charger

Powering the charger
Caution:
Use only the DC power adapter supplied with the unit to power the charger.

1. Plug the DC plug of the DC power adapter (A) into the DC inlet on the charger (see below).



2. Select the appropriate mains plug adapter from the “Mains plug adapter kit” supplied with the SpeechLink 100 to fit your mains outlet, and slide it into the mains adapter until it clicks.

3. Connect the DC power adapter to a mains power outlet. When you switch on power to the charger, the green power indicator on the charger front is lit.

2.5.3 Batteries

Caution:
Use only the battery types listed in Chapter 6, "Technical Specifications - AURICAL SpeechLink 100" on page 45.

NiHM rechargeable batteries

The SpeechLink 100 is delivered with a rechargeable NiHM battery. Before you can operate SpeechLink 100, insert the battery in the SpeechLink 100 (see Section 2.5.4, 'Inserting the battery" on page 27).

First time charging
Charging applies only if you use a rechargeable battery.

The rechargeable NiHM battery may not be charged when you receive the SpeechLink 100. You may therefore have to charge the battery for some hours, and preferably overnight, before you switch on the SpeechLink 100.

A fully discharged battery must be charged in the SpeechLink 100 charger for 14 hours before it is fully charged.

A new rechargeable battery may not reach full capacity until it has been recharged a couple of times.

Alkaline batteries

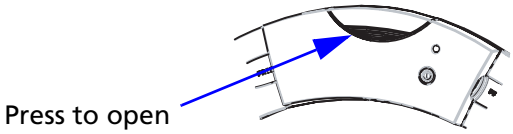
If required, the SpeechLink 100 can be powered by a non-chargeable Alkaline battery.

WARNING:
If you use the SpeechLink 100 with an Alkaline battery, always switch off the power supply to the charger. Even though charging will normally be switched off automatically when an Alkaline battery is detected, charging an Alkaline battery may cause the battery to leak and cause damage to the SpeechLink 100.

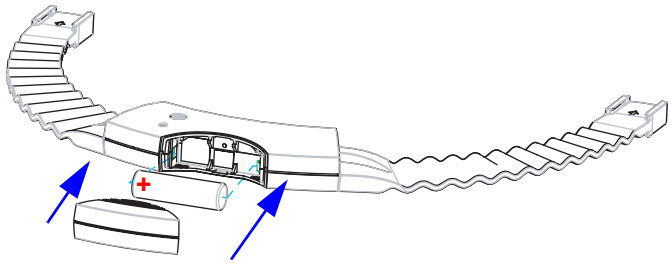
2.5.4 Inserting the battery

1. Remove the SpeechLink 100 from the charger.

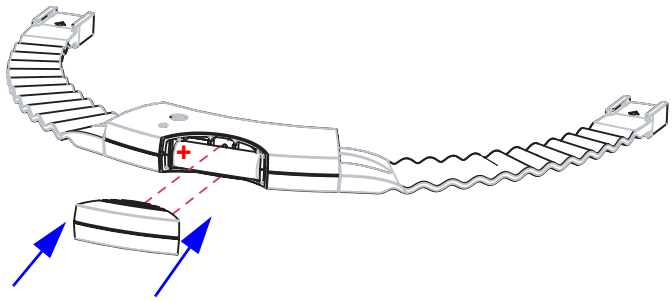
2. To insert the battery, press the grooved area on the front of the battery cover at the top of the SpeechLink 100 and gently tip the lid backwards off the compartment.



3. Insert the battery as shown below. A label inside the battery compartment shows which way the battery fits.

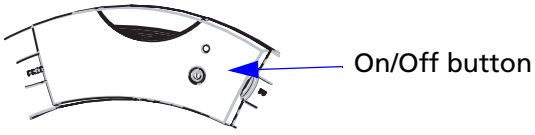


4. Put the battery cover back in place.



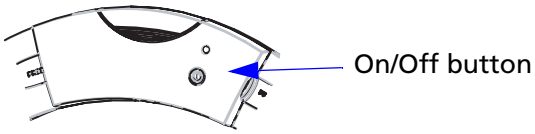
2.5.5 Switching on SpeechLink 100

To switch on SpeechLink 100, press and hold the **On/Off** button on top of the device until the status indicator light turns on. The status indicator will light for about 3 seconds, and then go into periodical flashing. The various light indications are described in "Powering status" on page 30.



2.5.6 Switching off SpeechLink 100

To switch off SpeechLink 100, press and hold the **On/Off** button on top of the device until the status indicator light turns off.



2.5.7 Charging SpeechLink 100

It is recommended that you place SpeechLink 100 on the charger when it is not in use. This will ensure that the batteries are always charged, and the charger is a convenient cradle for SpeechLink 100.

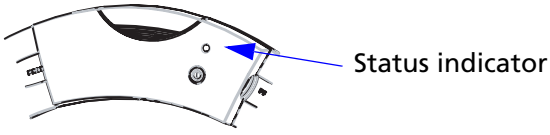
If SpeechLink 100 is switched on when you place it on the charger, it will automatically be switched on again when you remove it from the charger.

If SpeechLink 100 is switched off when you place it on the charger, it will be switched off when you remove it from the charger.

Charging status
When SpeechLink 100 is placed on the charger, it will automatically disconnect from OTOsuite Visible Speech Module and go into charging mode.

Note:
It is not possible to use SpeechLink 100 while it is being charged.

When SpeechLink 100 is placed on the charger, you can follow the status of the charging process on the front of SpeechLink 100. The status indicator shows the following states:



Amber, steady

- SpeechLink 100 is charging.
  Note that charging is automatically discontinued after 14 hours of charging. This is done to ensure that batteries are not being over-charged.

Green, steady

- The SpeechLink 100 is not charging.
  The SpeechLink 100 enters this state after 14 hours of continuous charging or if an Alkaline battery has been detected.

  Note that charging is resumed when the device is placed on the charger.

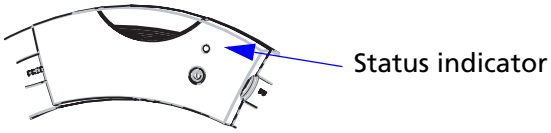
Red, flashing

- An error has occurred in SpeechLink 100 during charging. Most likely, the battery is defective. Replace the battery and try charging again. If the error continues, contact your supplier.

2.5.8 Powering status

Shown on the SpeechLink 100

When the SpeechLink 100 is powered on, you can check the status on the status indicator on the front of the SpeechLink 100.



The status indicator shows the following states:

Green, flashing (every 2 seconds)

- The SpeechLink 100 is turned on and ready for use. Battery status is OK.

Amber, flashing

- The SpeechLink 100 is turned on but the battery status is low. The SpeechLink 100 can be used in this mode for a period of time, but needs to be recharged or fitted with a new Alkaline battery as soon as possible.

Amber, flashing (more than every 2 seconds)

- SpeechLink 100 is turned on and is communicating with OTOsuite Visible Speech Module.
  SpeechLink 100 can be used in this mode for a period of time, but must be recharged or fitted with a new Alkaline battery as soon as possible.

Blue, flashing (every 2 seconds)

- The SpeechLink 100 is turned on and a Bluetooth connection with the OTOsuite Visible Speech Module has been established. Battery status is OK.

Blue, flashing (more than every 2 seconds)

- SpeechLink 100 is turned on and is communicating with the OTOsuite Visible Speech Module. Battery status is OK.

Red, flashing

- An error has occurred in SpeechLink 100. Wait for the unit to power off automatically or remove the battery to turn off the unit. Power on the unit again. If the error continues, contact your supplier.

"Battery low" indication in OTOsuite Visible Speech Module

When a battery low state is detected in the SpeechLink 100, this is signalled by the SpeechLink 100 status indicator by the amber colour described in "Amber, flashing" on page 30.

If SpeechLink 100 is connected to the OTOsuite Visible Speech Module, a "Battery low" indication is shown in the bottom right corner of the screen. Also, a bubble notification will appear.

When the "Battery low" warning occurs, there will be approximately ½ hour of continuous use left. The time left will, however, vary depending on how the SpeechLink 100 is used, and the state of the battery. If the rechargeable battery is fairly old, the time left will be shorter than for a new battery.

Note:

For Alkaline batteries, the "Battery low" indication may not leave as much testing time as a rechargeable battery would.

2.6 Communication with the OTOsuite Visible Speech Module via Bluetooth

Communication via Bluetooth is established automatically from the OTOsuite Visible Speech Module, when you wish to use SpeechLink 100.

Note:

1. SpeechLink 100 must be switched on to be able to communicate with the OTOsuite Visible Speech Module.

2. The OTOsuite Visible Speech Module cannot communicate with SpeechLink 100 while the device is placed in the charger and the power to the charger is connected.

3 Preparing AURICAL SpeechLink 100 for testing

- "Preparing AURICAL SpeechLink 100" on page 33
- "Preparing for tube calibration" on page 33

The following section describes how you prepare the AURICAL SpeechLink 100 for testing.

For actual testing scenarios, see the OTOsuite Visible Speech Module Online Help.

3.1 Preparing AURICAL SpeechLink 100

1. Start up your OTOsuite Visible Speech Module and Visible Speech Module software on the computer.
2. Switch on AURICAL SpeechLink 100. When you switch on AURICAL SpeechLink 100 to start testing:

Battery status

3. Check the battery status of SpeechLink 100 to make sure that the device is ready for testing. See Section 2.5.8, 'Powering status" on page 30.
4. Fit silicone test tubes to the probes you will be using. See "Fitting silicone tubes on the probes" on page 20.

Tube calibration

5. Perform a tube calibration if you have fitted AURICAL SpeechLink 100 with new silicone tubes. See Section 3.2, 'Preparing for tube calibration" on page 33.

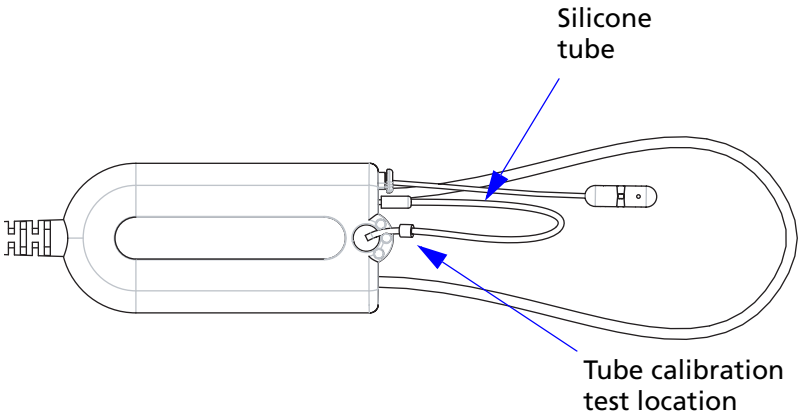
3.2 Preparing for tube calibration

It is recommended that you perform a tube calibration whenever you change silicone tubes on the probe.

1. Fit a new silicone tube on the probe. See "Fitting silicone tubes on the probes" on page 20.

This is to make calibrate the acoustic influence of the individual tubes on the frequency response.

2. Insert the free end of the silicone tube in the test cavity in the probe.



3. Run the tube calibration from the OTOsuite Visible Speech Module. For instructions, see the OTOsuite Visible Speech Module Online Help

4 Service and Maintenance - AURICAL SpeechLink 100

- Section 4.1, 'Equipment failure" on page 35
- Section 4.2, 'Service and repair" on page 35
- Section 4.3, 'Maintenance" on page 36
- Section 4.4, 'Troubleshooting" on page 38

4.1 Equipment failure

WARNING:
Do not use a defective device.

If you believe the correct function or operation safety of the SpeechLink 100 to be faulty in any way, disconnect SpeechLink 100 from the power supply, remove the batteries, and make sure that it cannot be used by others until it has been serviced.

WARNING:
Under no circumstances disassemble the SpeechLink 100 or SpeechLink 100 charger. Contact your supplier.

4.2 Service and repair

WARNING:
Under no circumstances disassemble the SpeechLink 100 or SpeechLink 100 charger. Contact your supplier. Parts inside the SpeechLink 100 or SpeechLink 100 charger must only be checked or serviced by authorized personnel.

WARNING:
Do not disassemble the SpeechLink 100 charger as there is a risk of electric shock.

For the sake of safety and in order not to void the warranty, service and repair of electromedical equipment should be carried out only by the equipment manufacturer or by service personnel at author-

ised workshops. In case of any defects, make a detailed description of the defect(s) and contact your supplier.

The manufacturer reserves the right to disclaim all responsibility for the operating safety, reliability and performance of equipment serviced or repaired by other parties. Following repair, the equipment should be tested by suitably qualified personnel.

On request, your supplier can obtain a Service Manual from the manufacturer. The Service Manual contains electrical diagrams, descriptions, lists of components and calibration information, etc.

4.3 Maintenance

Section 4.3.1, 'Calibration" on page 37

Section 4.3.2, 'Replacing a probe" on page 37

Section 4.3.3, 'Replacing an ear cord" on page 37

Section 4.4.1, 'Powering problems" on page 38

Caution:
Keep the unit away from liquids.

Do not allow moisture inside the unit.

Note:
Never immerse the SpeechLink 100 probes into water or other cleaning solutions.

The SpeechLink 100 and charger unit require no preventive maintenance. However, it is recommended that you observe the guidelines below.

- The SpeechLink 100 and its component parts are in constant contact with your patients so care should be taken to ensure that they are kept clean and free from dust. Use a soft, slightly damp cloth with a small amount of detergent to clean the unit and the charger.

- The only part which is inserted into the ear canal in VSM testing is the silicone tube. These tubes are disposable, and should only be used once per patient.

There are no special requirements for disposal of the silicone probe tubes, i.e. they may be discarded according to local regulations.

4.3.1 Calibration

SpeechLink 100 and probes are calibrated at the factory.

- The probe calibration values for the reference microphone are saved in the probe assembly and follow the probe. Accordingly, it is not necessary to keep track of left and right probes. A probe can be plugged into any SpeechLink 100 and used right away.

Annual calibration

The SpeechLink 100 device and probes must be calibrated once a year by your authorized service department.

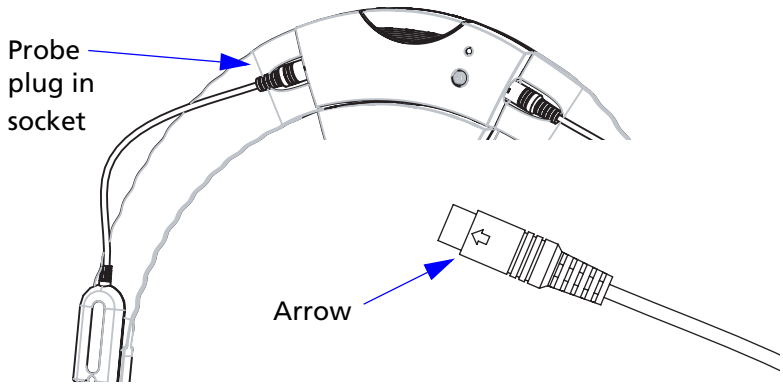
4.3.2 Replacing a probe

Disconnecting the probe from SpeechLink 100

1. Disconnect the probe from SpeechLink 100. Grip the probe cable by the plug and free it by gently pulling it out of the socket. Do not pull the plug by the cable.

Connecting the probe to SpeechLink 100

1. Insert the probe plug of the new probe in the probe socket on the side of SpeechLink 100. The arrow stamped on the plug must face outwards when you insert the plug.



4.3.3 Replacing an ear cord

The ear cords are mounted at the factory. If you need to replace an ear cord:

- Remove the old cord, if required.
- Mount the new ear cord on the probe. To do so, pull on the rubber cord and slide it into the groove.

4.4 Troubleshooting

4.4.1 Powering problems

Problem	Possible cause	Solution
SpeechLink 100 does not power on even though I press the power button.	• The battery is inserted incorrectly. • The battery needs charging or replacing.	• Insert the battery correctly. • Charge the battery or fit SpeechLink 100 with a new battery.
SpeechLink 100 powers off and cannot power on even though I press the power button.	• The battery needs charging or replacing.	• Charge the battery or fit SpeechLink 100 with a new battery.
The SpeechLink 100 status indicator does not light up when I place SpeechLink 100 in the charger.	• The charger is not connected to the power adaptor, or the power adaptor is not connected to the mains power supply.	• Connect the power adaptor to the charger and to the mains supply.
The SpeechLink 100 battery lifetime is very low even thogh the battery has been charged.	• The battery is defect, maybe because it is too old.	• Fit SpeechLink 100 with a new rechargeable battery.
The SpeechLink 100 status indicator changes from amber (charging) to green (charging complete), very soon after I place SpeechLink 100 in the charger.	• An Alkaline battery has been inserted in SpeechLink 100. • No battery is fitted in SpeechLink 100. • The battery is defective.	• Fit SpeechLink 100 with a new battery.

5 AURICAL SpeechLink 100 Safety

- Section 5.1, ‘Symbols used” on page 39
- Section 5.2, ‘Warning notes” on page 41
- Section 5.3, ‘Manufacturer” on page 43

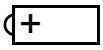
This Reference Manual contains information and warnings, which must be followed to ensure the safe performance of AURICAL SpeechLink 100. Local government rules and regulations, if applicable, should also be followed at all times.

5.1 Symbols used

- Section 5.1.1, ‘AURICAL SpeechLink 100 symbols” on page 39
- Section 5.1.2, ‘Charger unit symbols” on page 40

5.1.1 AURICAL SpeechLink 100 symbols

	AURICAL SpeechLink 100 is marked with this symbol to indicate compliance with Type BF of the safety standard EN 60601-1. See Section 6.8, ‘Standards” on page 47.
	The AURICAL SpeechLink 100 is marked with this symbol when it is important that the user refers to associated information given in this manual.
CE XXXX	The AURICAL SpeechLink 100 is CE-marked according to the Medical Devices Directive 93/42/EEC and the Radio Equipment and Telecommunications Terminal Equipment Directive 1999/5/EC.
	Classified with respect to electrical shock, fire, mechanical and other specified hazards only in accordance with UL2601-1 and CAN/CSA-C22.2 NO 601.1-90

	The AURICAL SpeechLink 100 carries this symbol to indicate that, in France, it is only permitted to use the device indoors.
FCC	This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: 1. This device may not cause harmful interference. 2. This device must accept any interference received, including interference that may cause undesired operation. Refer to Notes 5 through 7 in Section 5.2, 'Warning notes" on page 41 for more details.
	The AURICAL SpeechLink 100 carries this symbol to identify the positioning of the battery inside the battery compartment.
IC	The term"IC": before the certification/registration number only signifies that the Industry Canada technical specifications were met.
	• Interference may occur in the vicinity of the AURICAL SpeechLink 100. Local regulations and precautions for other equipment in the environment should always be followed to avoid interference. • The separation distance from the AURICAL SpeechLink 100 to other devices complying with standard immunity requirements in EN 60601-1-2 is minimum 0.35 m/1ft.
	Symbols on buttons to operate AURICAL SpeechLink 100, see Section 2.3.1, 'Front view" on page 13.

5.1.2 Charger unit symbols

	The charger unit is marked with this symbol when it is important that the user refers to associated information given in this manual.
CE XXXX	The charger unit is CE-marked according to the Medical Devices Directive 93/42/EEC.
	The charger unit is marked with this symbol to indicate that it is suitable for direct current only.

5.2 Warning notes

- Section 5.2.1, 'AURICAL SpeechLink 100 warning notes" on page 41
- Section 5.2.2, 'Charger unit warning notes" on page 43

5.2.1 AURICAL SpeechLink 100 warning notes

	The AURICAL SpeechLink 100 should only be provided with prescribed battery types, see Section 6, 'Technical Specifications - AURICAL SpeechLink 100" on page 45. Place the battery as indicated in the battery compartment, see Section 2.5.3, 'Batteries" on page 27 for further details. Use only rechargeable batteries when AURICAL SpeechLink 100 is placed in the charger unit. If you are using an alkaline battery, do not attempt to charge your AURICAL SpeechLink 100. Your alkaline battery may be damaged and leak, and this may in turn cause damage to AURICAL SpeechLink 100. Batteries should be removed if equipment is not likely to be used for some time.
	AURICAL SpeechLink 100 should only be connected to the type 1053 Charger from GN Otometrics A/S.

Note 1: There are no user-serviceable parts inside the AURICAL SpeechLink 100 device cabinet. For the sake of safety, and in order not to void the warranty, the cabinet should only be opened and serviced by authorized service personnel. In case of defects, please make a detailed description of the defect(s) and contact your supplier. Do not use a defective instrument.

Note 2: Keep the AURICAL SpeechLink 100 away from liquids. Do not allow moisture inside the instrument.

Note 3: Do not use the instrument in the presence of flammable anesthetics (gases).

Note 4: Unwanted noise may occur if the AURICAL SpeechLink 100 is exposed to a strong radio field. Such noise may interfere with the process of fitting a hearing instrument. Many types of electrical devices, e.g. mobile telephones, may generate radio fields. We recommend

that the use of such devices in the vicinity of the AURICAL SpeechLink 100 is restricted as much as possible.

Note 5: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Note 6: 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.

Note 7: For use in Canada: To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Note 8: No parts may be eaten, burnt, or in any way used for purposes other than audiometry or the fitting of hearing aids.

Note 9: The AURICAL SpeechLink 100 can be disposed of as normal electronic waste, according to local regulations. Please investigate local regulations concerning the disposal of rechargeable and alkaline batteries.

Note 10: For safety reasons, accessories connected to the equipment's outlet fittings must be identical to the type supplied with the system.

Note 11: It is recommended that an annual calibration be performed on accessories containing transducers. Furthermore, it is recommended that calibration be performed if the equipment has suffered any potential damage (e.g. transducers dropped on the floor).

Note 12: To comply with EN 60601-1-1 computer and printer must be placed out of reach of the patient, i.e. not closer than approx. 1.5 meters/5 ft.

5.2.2 Charger unit warning notes

	Do not attempt to use AURICAL SpeechLink 100 with patients while it is placed in the charger unit. Use only rechargeable batteries when AURICAL SpeechLink 100 is placed in the charger unit. If you are using Alkaline batteries, do not attempt to charge AURICAL SpeechLink 100.

Note 1: The charger unit should be kept away from the patient area.

Note 2 There are no user-serviceable parts inside the charger unit cabinet. For the sake of safety, and in order not to void the warranty, the cabinet should only be opened and serviced by authorized service personnel. In case of defects, please make a detailed description of the defect(s) and contact your supplier. Do not use a defective instrument.

Note 3 The charger unit can be disposed of as normal electronic waste, according to local regulations.

5.3 Manufacturer

- Section 5.3.1, 'Responsibility of the manufacturer" on page 43

GN Otometrics A/S
2 Dybendalsvaenget, DK-2630 Taastrup, Denmark
Phone: +45 72 111 555, Fax: +45 72 111 548
E-mail: info@gnotometrics.dk
www.gnotometrics.com

5.3.1 Responsibility of the manufacturer

The manufacturer is to be considered responsible for effects on safety, reliability, and performance of the equipment **ONLY IF**:

- All assembly operations, extensions, re-adjustments, modifications or repairs are carried out by the equipment manufacturer or personnel authorised by the manufacturer.
- The electrical installation to which the equipment is connected complies with EN/IEC requirements.
- The equipment is used in accordance with the instructions for use.

The manufacturer reserves the right to disclaim all responsibility for the operating safety, reliability and performance of equipment serviced or repaired by other parties.

6 Technical Specifications - AURICAL SpeechLink 100

6.1 AURICAL SpeechLink 100

6.1.1 Interface

Wireless Bluetooth data transfer to PC, version 1.2, class 2 (10 meters).

6.1.2 Type identification

AURICAL SpeechLink 100 is type 1053 from GN Otometrics A/S

6.1.3 Power supply

Battery types:	Rechargeable (Ni-MH type) AA (R6) 1.2V, 1 pc. Use only rechargeable battery supplied by GN Otometrics A/S Alkaline AA (R6) 1.5V, 1 pc.
Battery supply voltage:	Nom. 1.30 V, Max. 1.65 V, Min. start-up: 1.10 V (Measured with instrument load) Min. when running: 1.00 V
Low battery indicator level:	When approximately 30 minutes of battery operating time remain.
Estimated battery life:	5 hours of continuous use. (This is based on a typical use scenario. The actual use can influence the battery life time).
Mode of operation:	Continuous.

6.2 Charger unit

Type identification:	Charger unit is type 1053 Charger from GN Otometrics A/S
Nominal input voltage:	9 V DC
Min. input voltage:	6.5 V DC

Max. input voltage: 12 V DC

Max. power consumption while charging: 300 mA (at 9 V input voltage)

Max. power consumption when not charging: 60 mA (at 9 V input voltage)

6.3 Power adaptor

Power supply

Input voltage range: 100-240 V AC, 50-60 Hz

Output voltage range: 9 V DC

Any IEC/UL 60601 or IEC/UL 60950 certified power adaptor supplying 9 V DC, min. 300 mA and with a maximum available output of 15 W can be used.

6.4 Operating environment

Temperature: +15°C to +35°C (59°F to +95°F)

Rel. humidity: 30 to 90 %, non-condensing

Warm-up time: < 1 min.

Air pressure: 600 hPa to 1060 hPa

Operation at temperatures below -20°C or above +60°C may cause permanent damage.

6.5 Storing and handling

Temperature: -20°C to +60°C (-4°F to +140°F)

Rel. humidity: < 90 %, non-condensing

Air pressure: 500 hPa to 1060 hPa

6.6 Dimensions

AURICAL SpeechLink 100 (HxWxD):23 mm x 350 mm x 230 mm (0.91″ x 13.7″ x 9.1″)

Charger unit (HxWxD): 290 mm x 180 mm x 230 mm (11.4″ x 7.1″ x 9.1″) (with table plate mounted)

Charger unit (HxWxD): 350 mm x 180 mm x 230 mm (13.8″ x 7.1″ x 9.1″) (with wall plate mounted)

6.7 Weight

AURICAL SpeechLink 100:	0.180 kg/0.34 lb
Charger unit:	0.825 kg/1.8 lb

6.8 Standards

Safety:	EN 60601-1, UL 2601-1, CAN/CSA -C22.2 NO 601.1-90
	AURICAL SpeechLink 100: EN 60601-1, Internal Powered, Type BF, IPX0
EMC:	EN 60601-1-2, EN 300 328-2, EN 301 489-17

7 Index

A
Alkaline batteries 27
Assembly
SpeechLink 100 16
SpeechLink 100 base plate 17
SpeechLink 100 charger 17
SpeechLink 100 counterweights 25
SpeechLink 100 probes 20
SpeechLink 100 shoulder strap 22
SpeechLink 100 with NOAHlink 19, 23
SpeechLink 100, wall mounted 19

B
Base plate
assembly 17
Batteries
Alkaline 27
battery low status, SpeechLink 100 31
inserting in SpeechLink 100 27
batteries
Alkaline 27
NiHM 27
rechargeable 27
Bluetooth communication 31

C
Calibration
annual c., SpeechLink 100 37
preparing for tube c. 33
SpeechLink silicone tubes 33
CE marking 39
Charger
assembly 17
charging status, SpeechLink 100 29
desktop installation 17
first time charging 27
powering 26
views 15
charger
wall mount installation 19
Charging SpeechLink 100 29
Communication, Bluetooth 31
Counterweights
SpeechLink 100 25

G
Getting started
SpeechLink 11

I
Installation
SpeechLink 100 16
Installation location
SpeechLink 100 17
Intended use
AURICAL SpeechLink 100 8

M
Maintenance 35
Manufacturer
AURICAL SpeechLink 100 43
responsibility 43

N
NiHM batteries 27
NOAHlink
adjusting straps 24
fitting on SpeechLink 100 23
installation 19

O
on/off, SpeechLink 100 28

P
Powering
battery status 30
battery types 27
charger 26
device 26
problems, SpeechLink 100 38
SpeechLink 100 25
Powering off SpeechLink 100 29
Powering on SpeechLink 100 28
Powering status, SpeechLink 100 30
Preparing for testing
SpeechLink 100 33

probe
view 16
Probes
assembly 20
replacement 37
tube calibration 33
view 16

R
rechargeable batteries 27
Replacement
probes 37

S
Safety
AURICAL SpeechLink 100 39
AURICAL SpeechLink 100 manufacturer 43
AURICAL SpeechLink 100 symbols 39
AURICAL SpeechLink 100 warning notes 41
CE marking 39
Medical Devices Directive 39
SpeechLink 100 39
Service and repair 35, 39
Shoulder strap
assembly 22
Specifications, technical, SpeechLink 100 45
SpeechLink 100
annual calibration 37
assembly 16
assembly with NOAHlink 19
assembly, wall mounted 19
battery low status 31
charging 29
charging status 29
counterweight assembly 25
equipment failure 35
inserting batteries 27
installation 16
installation location 17
NOAHlink assembly 23
powering 25
powering status 30
preparing for testing 33
probe assembly 20
probes 16
replacing probes 37
shoulder strap assembly 22
storing 11
switching off 29
switching on 28
troubleshooting 38
unpacking 11
views 12
SpeechLink 100 base plate
assembly 17
SpeechLink 100 charger
assembly 17
first time charging 27
SpeechLink 100 probes
assembly 20
SpeechLink 100 shoulder strap
assembly 22
Status indicator
battery low status 31
charging status 29
powering status 30
Storing 11
SpeechLink 100 11
Straps
adjusting, NOAHlink 24
Switching off SpeechLink 100 29
switching on device 28
Switching on SpeechLink 100 28

T
Technical specifications, SpeechLink 100 45
Test devices
views 12
Troubleshooting
SpeechLink 100 38
Tube calibration 33
preparing for 33

U
Unpacking
SpeechLink 100 11

W
Wall mounting
SpeechLink 100 19
Warning notes
AURICAL SpeechLink 100 41