SMART HEARING

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ReSound LiNX²™

ReSound Aventa® 3.9 fitting guide

SURROUND SOUND by ReSound

ReSound

rediscover hearing

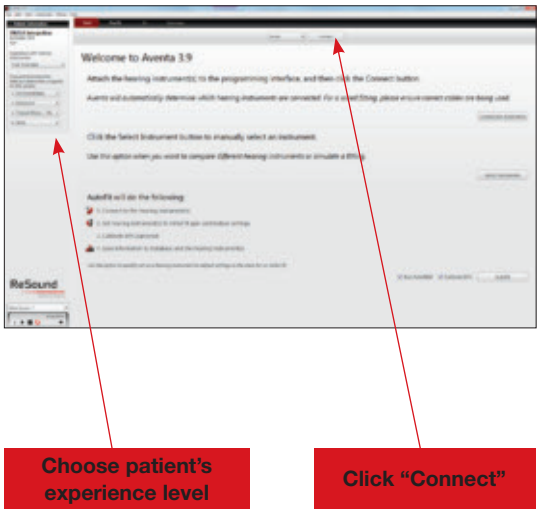
This fitting guide gives an overview of how to fit ReSound LiNX² wireless hearing instruments with ReSound Aventa® 3.9. A ReSound LiNX² 962 wireless binaural fitting is depicted. Not all features described in this fitting guide are applicable for LiNX² 7 and 5 fittings.

ReSound Aventa 3.9 fitting software supports all ReSound instruments built on the ReSound Range™, ReSound Range II and SmartRange™ chips.

Getting started

Prior to connecting to ReSound Aventa 3:

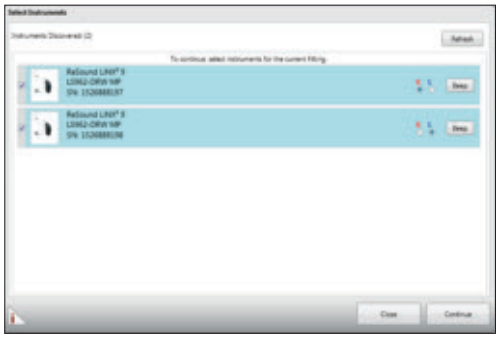
1. ReSound devices require a battery when fitting. Make sure the battery is fresh and that it is inserted correctly.
   a. For wireless fittings, insert Airlink™/Airlink II in a USB slot on the fitting PC and wait for the message that new hardware has been found. Then open ReSound Aventa 3.
   b. For wired fittings, ensure that the programming interface (Speedlink, Hi-PRO or NOAHlink) is connected to the PC before launching ReSound Aventa 3.
2. Launch ReSound Aventa 3. For new fittings, ReSound Aventa 3 begins in the Start screen, where the patient's experience with amplification can be selected. Selection of fitting interface and connection to the hearing aids is done in the upper part of the Start screen.



Remove the stickers from the size 13 batteries to activate them. Wait for 2 minutes for best results. Click "Connect" in the center of the top ribbon of the ReSound Aventa 3 Start screen.

Insert the battery and close the battery door of each hearing instrument to be programmed, and then click "Connect."

The hearing instruments will appear in the “Select Instruments” section. When all hearing instruments to be programmed have been discovered, click on “Beep” to identify each hearing instrument, and assign it as a right or left device. When each hearing instrument has been assigned, click “Continue”.



Play a beep to determine right from left hearing instrument

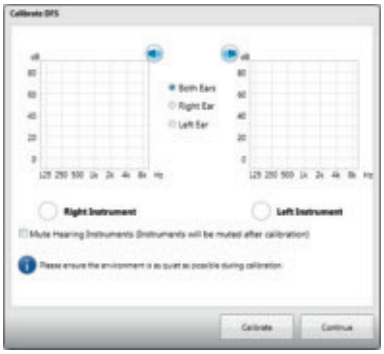
Assign hearing instrument to right or left ear

A window will appear showing the status of the connection, and will alert you to recommendations for venting. Choose receiver and vent configuration as needed. Click “Continue.”

If you have selected “Experienced linear” in the Pre-Fit screen and you are fitting a UP receiver, you will be prompted to choose an amplification mode. Linear mode provides the same gain for all input levels and has only one input level control. Semi linear provides a lower compression ratio than WDRC.

If fitting a UP receiver, a progress window will alert you to the capability of the hearing instrument to exceed 132 dB SPL. Click “Continue.”

Next, a window will appear to prompt calibrating DFS Ultra™ II. Click “Calibrate” to begin the calibration procedure. The progress of the calibration will be shown. Click “Continue” after calibration is completed.



At this point, you may pair ReSound Unite™ accessories by clicking “Unite Accessories”, or proceed to the fitting by clicking “Continue”. In this guide, “Continue” is selected.

Fine-tune the hearing instruments

Gain adjustment

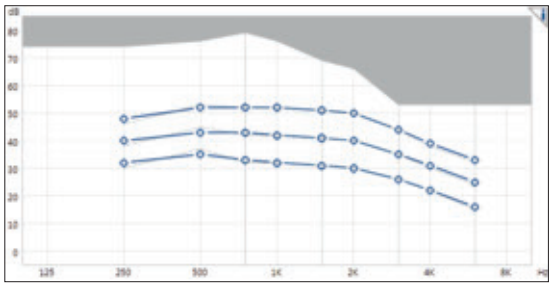
When the Fit screen is displayed, the hearing instrument gains and MPOs can be adjusted, and advanced features can be accessed.

Maximum stable gain and Safe Fitting

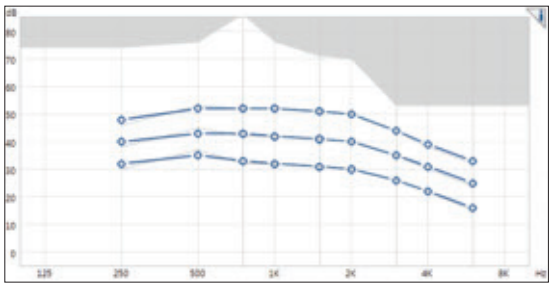
Once DFS Ultra™ II is calibrated, the Fit screen automatically opens with two shaded grey areas visible on the graph (in most cases).

The darker grey shaded area indicates unavailable gain while the light grey indicates added maximum stable gain provided by DFS Ultra™ II.

If Safe Fitting is enabled, gain settings will be locked at the dark grey border. Safe Fitting can be turned off and on in the Fitting menu or set as a user preference. Note that if you have not calibrated DFS Ultra™ II, there will only be one shaded area which indicates the full-on gain of the particular hearing instrument.



Safe fitting on



Safe fitting off

Program management

The Program tabs are located between the graph and the gain handles. This is where programs can be reordered, compared, recalculated, autorelated, copied, pasted, added or removed.

Advanced features

Feature settings are accessed by clicking “Advanced Features” in the “Tools” menu on the left side of the screen. These feature settings apply to the currently selected program.

Directionality

Binaural Directionality™ II uses ReSound’s 2.4 GHz wireless technology to allow the hearing instruments to work together, dynamically selecting the best microphone response for the listening environment. The result may be a bilateral omnidirectional, bilateral directional or an asymmetric omnidirectional and directional response, depending on the analysis of speech and noise detectors from both hearing instruments. This provides the user with the optimal combination of speech understanding in noise plus a more natural sense of surroundings - even in the most difficult listening situations.

Natural Directionality™ II: The Focus and Monitor ears are prescribed based on the audiogram and any speech audiometry data that may be available, but this selection can be reversed through ReSound Aventa®.

Spatial Sense™ mimics the human ear’s natural response to sound, which preserves spatial cues and helps with the localization of sound sources.

SoftSwitching™ seamlessly enables and disables AutoScope/ MultiScope Adaptive Directionality™ depending on the listening environment. The response can be either omnidirectional or directional, based on the signal-to-noise ratio and direction of speech in the listening situation.

AutoScope Adaptive Directionality™ enables the beam width to automatically widen or narrow depending on the acoustic surroundings.

If ear-to-ear is activated, SoftSwitching will ensure that the microphone responses on both instruments are synchronized.

Directional Mix
The Directional Mix setting determines the degree of directionality in the output of the hearing instrument(s). Directional Mix applies omnidirectional processing below a crossover frequency and directional processing above that frequency. The default setting is prescribed depending on the hearing instrument model selected and the degree of low-frequency hearing loss.

DFS Ultra™ II
The “Mild” settings are most appropriate for speech and everyday inputs, “Moderate”, and “Strong” are good for feedback-critical situations like phone use. The “Music Mode” is designed for use in a “Music” program.

Auto DFS allows for a standard setting of DFS to be applied without calibration. If DFS has already been calibrated, the Auto DFS options (“On” and “Off”) are automatically grayed out.

Sound Shaper™
Sound Shaper is ReSound’s proportional frequency compression system. Its default setting is “Off.” The recommended setting, based on the audiogram, is in bold typeface when the menu options are pulled down.

Low Frequency Boost
If fitting a UP receiver, low Frequency Boost can be applied for users desiring more gain from 250-1000 Hz. “Low”, “Medium” and “High” settings will be achieved unless the maximal gain has already been met at these frequencies.

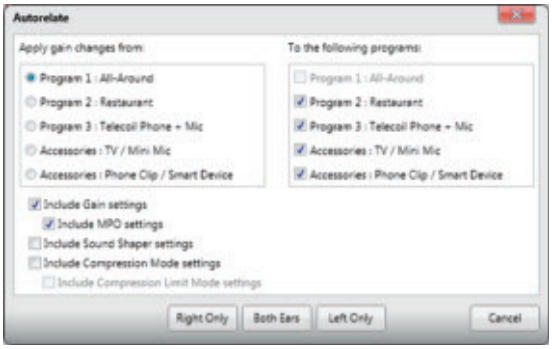
NoiseTracker™ II
In NoiseTracker™ II, the degree of noise reduction applied at any moment depends on the listening environment. Per environment noise reduction levels can be customized via Environmental Optimizer™ II.

WindGuard™
WindGuard™ uses signal processing to reduce wind noise, and is available in dual microphone devices.

Directional Mix option with temporary visualization of crossover frequency

ReSound Aventa® 3.9 includes three input level controls at 50, 65 and 80 dB SPL. This allows for greater flexibility for fine-tuning gains, By default, ReSound Aventa® calculates the gain settings for the particular audiogram using the Audiogram+ fitting rationale. Other fitting prescriptions can be selected from the “Fitting” menu. To fine-tune a program, adjust the gain manually by using the gain handles or by using the ReSound Aventa® Guide, where fine-tuning solutions to patient complaints can be automatically applied.

Once fine-tuning is complete, the relative gain changes can be applied to any or all other programs by clicking the “Autorelate” button in the program handling tool bar beneath the program tabs. Select which programs to autorelate to by checking the boxes. You may choose whether to apply changes made to MPO or Sound Shaper or compression mode for each program.

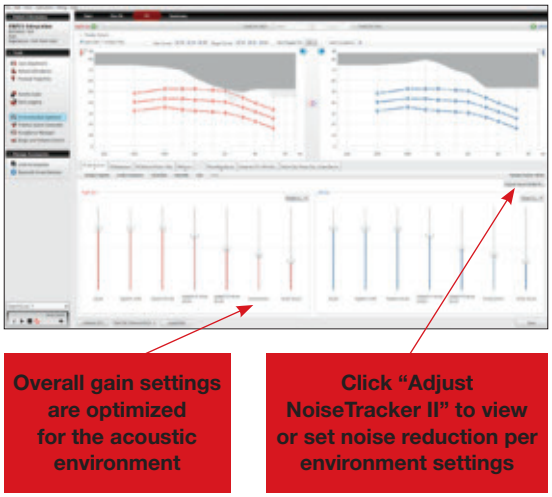


Physical properties

Dome type and vent configuration can be changed in Physical Properties. Selections in this screen affect the *display* of gains in the Fit screen. For example, when venting is changed, the amount of roll-off in the low frequencies will be adjusted to show how this physical change affects the expected real ear response. An option to (re)calibrate DFS is provided in case the change entered in Physical Properties accompanies a physical hardware change of the vent/tube/dome on the hearing instrument.

Environmental Optimizer™ II

Environmental Optimizer™ II allows specific gain and NoiseTracker™ II adjustments for a possible combination of seven different environments, ensuring the user receives optimal gain and noise reduction settings as the acoustic environment changes. If Ear-to-Ear Communication is enabled, the hearing instruments will optimize and synchronize the Environmental Optimizer II gain and noise reduction settings for a binaural fitting (Binaural Environmental Optimizer™ II).



Ear-to-Ear Communication

ReSound LiNX2 supports ear-to-ear communication. The master switch to disable/enable this functionality can be found in the main menu under “Instrument.” The “Ear-to-Ear Communication” window keeps a continual record of the enabled Ear-to-Ear features.

Tinnitus Sound Generator

The default setting for Tinnitus Sound Generator (TSG) is off. When TSG is in the “Standard” mode, TSG options such as noise type, level, modulation and modulation speed can be changed; when TSG is in the “Nature Sounds” mode, only sound level can be changed.

Synchronized Acceptance Manager

Synchronized Acceptance Manager allows for gradual gain increases from current gains to final gains over a specified amount of time. Synchronization of this feature is recommended in case of a loss of one hearing instrument during the acclimatization time, as this will prevent the remaining hearing instrument from progressing more than 10% past the progression of the lost hearing instrument, in the event it is found. Once activated, the Acceptance Manager progress will appear on the Fit screen. Final gain levels will appear as dotted lines. To set a final level different than current gain prescription, ensure the box above the gain handles indicates “End Gains (B).” Select the gain handles desired and fine tune the gains to the desired levels.

Beeps and Volume Control

The “Beeps and Volume Control” window has two tabs: Standard Beeps and Manual Controls. In the Standard Beeps tab, all the acoustic indicators can be demonstrated, changed, added and removed. Low or high frequency beeps can also be selected. The Manual Controls tab contains options such as customizing push button function, enabling and disabling the program button and adjusting the volume control range.

Manage accessories

The functionality for managing connectivity to Bluetooth® Smart devices and ReSound Unite™ accessories can be accessed both from the Pre-Fit and the Fit screens.

To pair ReSound Unite accessories with the hearing instruments, click “Add” and follow the instructions on the screen to put the selected accessory in pairing mode. Accessory pairing can also be achieved outside of ReSound Aventa®, with the hearing instruments and the accessory alone.

Instructions for pairing the accessory to the hearing instruments

Bluetooth Smart-enabled devices

Up to 5 Bluetooth Smart-enabled devices can be paired to the hearing instruments, but pairing must occur outside of ReSound Aventa.

Saving and completing the fitting

Once the fitting is complete, click “Save” at the bottom right of the Fit or Summary screens. Once the data is saved to the instruments and to the database, it is safe to disconnect the hearing instrument(s).

Summary screen

The Summary screen allows the clinician to print information for the patient, a third party, or for chart notes. Notes can be entered, saved and printed as needed.

ReSound Aventa® 3.9 TSG fitting guide

The Tinnitus Sound Generator (TSG) is now integrated into the ReSound LiNX²™ family as a standard feature. There is no longer a separate TS product. TSG is available in the 9, 7 and 5 technology levels. This guide assumes a fitting with a multi-program wireless LiNX² instrument with ear-to-ear capability.

Default Programs for LiNX² 9

- P1 - All Around
  Note: Directionality settings are Binaural Directionality™ II for binaural fittings, SoftSwitching™ for monarual fittings; Directionality settings are different for 7 and 5 technology levels.
- P2 - Restaurant
- P3 - Acoustic Phone.

Notes:

- *The Tinnitus Sound Generator (TSG) features are the same in all technology levels, and can be activated in any program.*
- *The TSG volume slider is in dB SPL. The TSG settings and audiogram can be displayed in dB SPL or dB HL.*
- *The binaural link option is not available in the TSG setup, therefore programming changes need to be applied to the right and left sides separately, unless synchronization is active (see Step 4).*
- *Settings for HI Microphone, Synchronize and Volume Control impact both Standard TSG and Nature Sounds.*
- *To fit ReSound LiNX² you will need ReSound Aventa®3.8 or newer.*

Follow the steps listed below to activate the TSG

1. Activate the TSG (two options)

Option A

- Activate the TSG in combination with the All Around program.
- Click on the “All Around” program tab.
- Select the “On” option to activate the TSG in combination with All Around. (Figure 1.)

Option B

- Configure a program for “TSG + Amplification” or “TSG” only.
- Click on the down arrow below the label on the program tab to display a drop-down menu. Select the program desired.
- Click on the “Tinnitus Sound Generator” tab on the left side of the screen. Select the “On” option to activate the sound generator in that program. (Figure 2.)

For TSG only

While in the “Tinnitus Sound Generator” screen, select the “On” option to activate the TSG, and select “Off” for HI Microphone to deactivate amplification. (Figure 3.)

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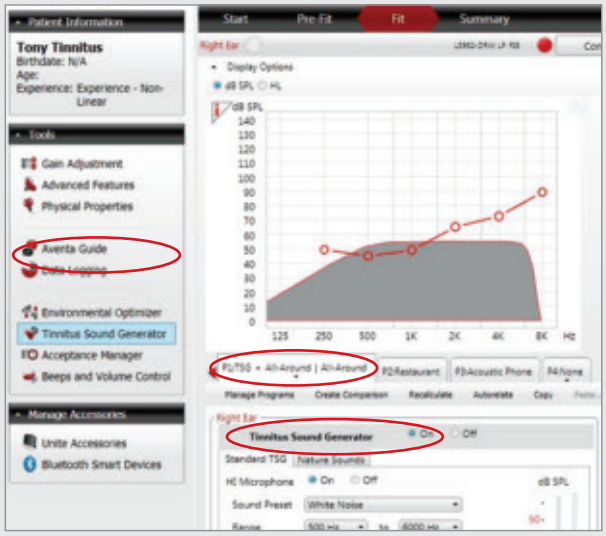

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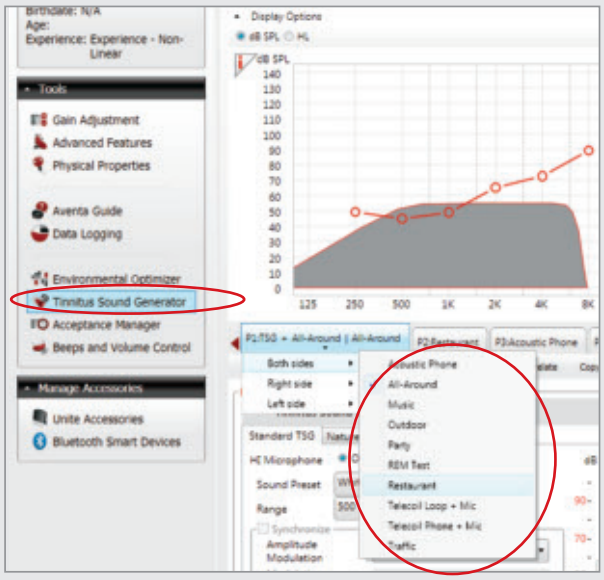

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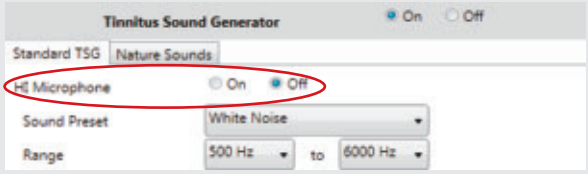

2. Set the TSG volume

The volume of the TSG is set using the volume slider. The volume should be set to a level that provides relief, but does not completely mask the tinnitus. (Figure 4.)

Below is a suggestion on how to first fit the TSG. It uses the threshold of audibility as a starting point.

Find the TSG threshold of audibility (three steps)

- Using the volume slider, turn up the volume until the patient reports that they can just barely hear the TSG white noise. This is the TSG threshold of audibility.
- Increase the volume slider until the patient reports they can no longer hear their tinnitus over the TSG sound. This is the level at which their tinnitus is completely masked. This is the minimum masking level (MML).
- Set the volume 5–10 dB above the threshold level. (You can go higher than 10 dB if necessary, but do not completely mask the tinnitus signal. This is where the MML is important.)

3. Set the TSG bandwidth

- Our TSG defaults to a broadband white noise setting. There are 4 sound preset options to choose from. They can be customized using the Range option to adjust the frequency shaping. Note: any change in volume or frequency shaping setting will default the sound preset to a "Custom" label. (Figure 5.)

4. Customize the TSG features according to patient preference

- "Amplitude Modulation" can be activated if the patient finds it to be comfortable. (Figure 6.)
- "Amplitude Modulation" causes the TSG to fluctuate in volume, creating an "ocean-like" noise sequence. A "Mild" setting offers less fluctuation, whereas a "Strong" setting offers more fluctuation.
- "Modulation Speed" controls how quickly the volume fluctuations occur. A "Slow" setting allows more time between fluctuations, whereas a "Fast" setting allows less time between fluctuations.
- Selecting "Synchronize" will enable ear-to-ear communication, ensuring the features of the TSG are automatically functioning symmetrically. (Figure 7.)

5. Customize the Volume Control options

- The "Volume Control" options determine how the volume of the TSG will be controlled. (Figure 8.)
- Selecting "Volume Control" will reassign the function of the manual volume control to the TSG only for that program.
- Selecting "Environmental Steering" will allow the volume of the sound generator to automatically adapt to the listening environment, ensuring comfort in all situations.
- Selecting "Volume Control + Environmental Steering" will combine the use of these two features. It allows manual volume adjustments while the Environmental Steering features is also active.

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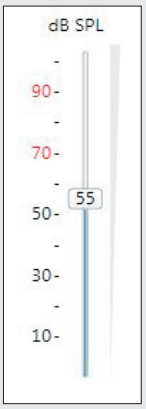

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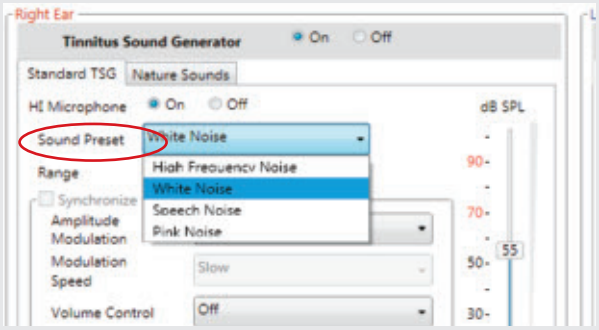

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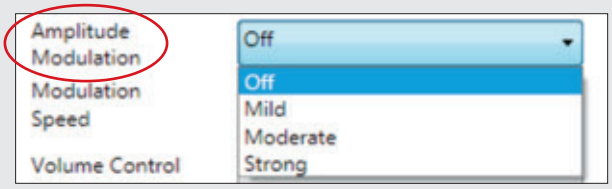

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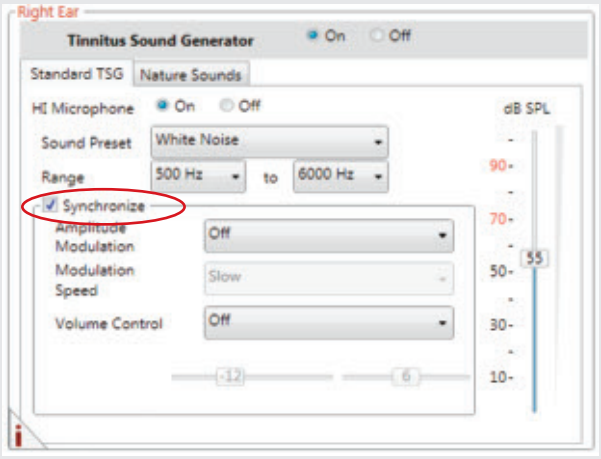

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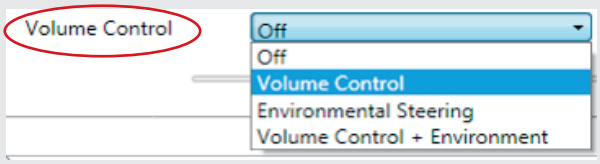

6. Activating Nature Sounds

- Nature Sounds can be used an alternative to the standard TSG, by selecting the Nature Sounds tab (Figure 9.)
- There are 6 water-inspired Nature Sound files to choose from. (Figure 9.)
- To activate a Nature Sound, click on the picture of the Nature Sound desired.
- Press 'Copy' to select the identical Nature Sound file for the other ear. (Figure 10.) Note: When the same Nature Sound is selected during a binaural fitting, a stereo effect will be applied. The stereo effect will not be applied if different Nature Sounds are selected between instruments.
- Advanced Settings allows you to adjust the low, mid and high frequency bands of the Nature Sound. (Figure 11.) Note: It is only recommended to use this if necessary.

7. Program and save

- To program the instruments and save to NOAH®, click "Save" in the lower right corner of the screen. This action can be done from within the "Fit" screen or the "Summary" screen. (Figure 12.)

Tinnitus patients have great variance in their needs and preferences for successful tinnitus management. The information in this fitting guide is designed to serve as suggested starting points, and can be modified as needed for individual patients.

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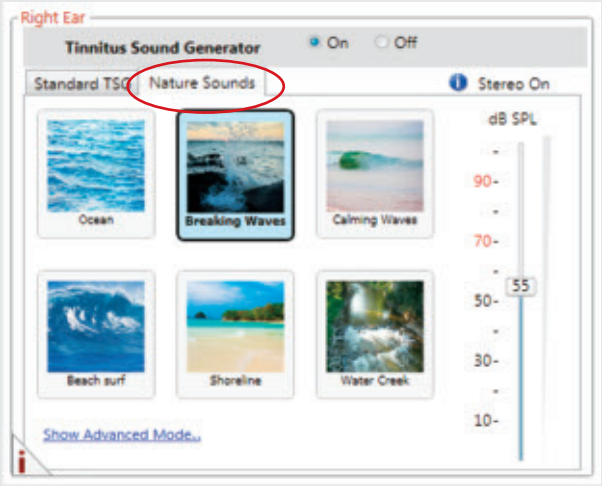

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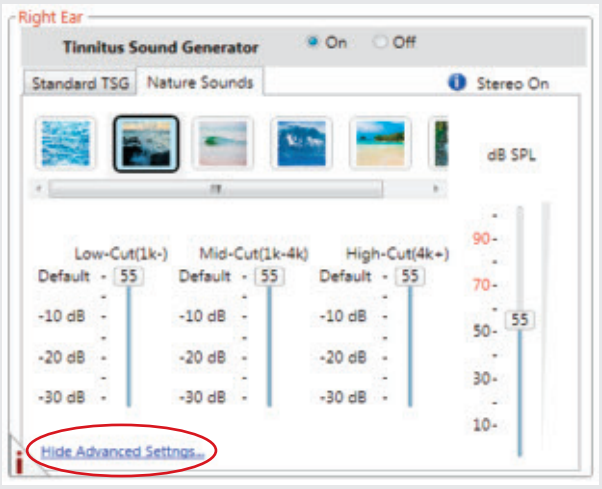

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ReSound® helps people rediscover hearing with hearing solutions that emulate the function of the natural ear. Our aim is to help you give your clients the opportunity to live a rich, active and fulfilling life unaffected by hearing loss.

ReSound LiNX²™ is the new benchmark in Smart Hearing, giving your clients exceptional sound quality, speech understanding and spatial awareness. They will be able to stream stereo sound directly from their iPhone, personalize their hearing experience on the fly, and engage effortlessly with family, friends and colleagues in any listening situation.

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