

Welcome to the Harmony™ Interactive Troubleshooting Guide



Press the button to begin

Harmony™ Interactive Troubleshooting Guide

These guides have been created to systematically lead you through active troubleshooting with the Harmony™ Sound Processor.

To use these guides simply review the choices and make your selection by clicking on the accompanying box.

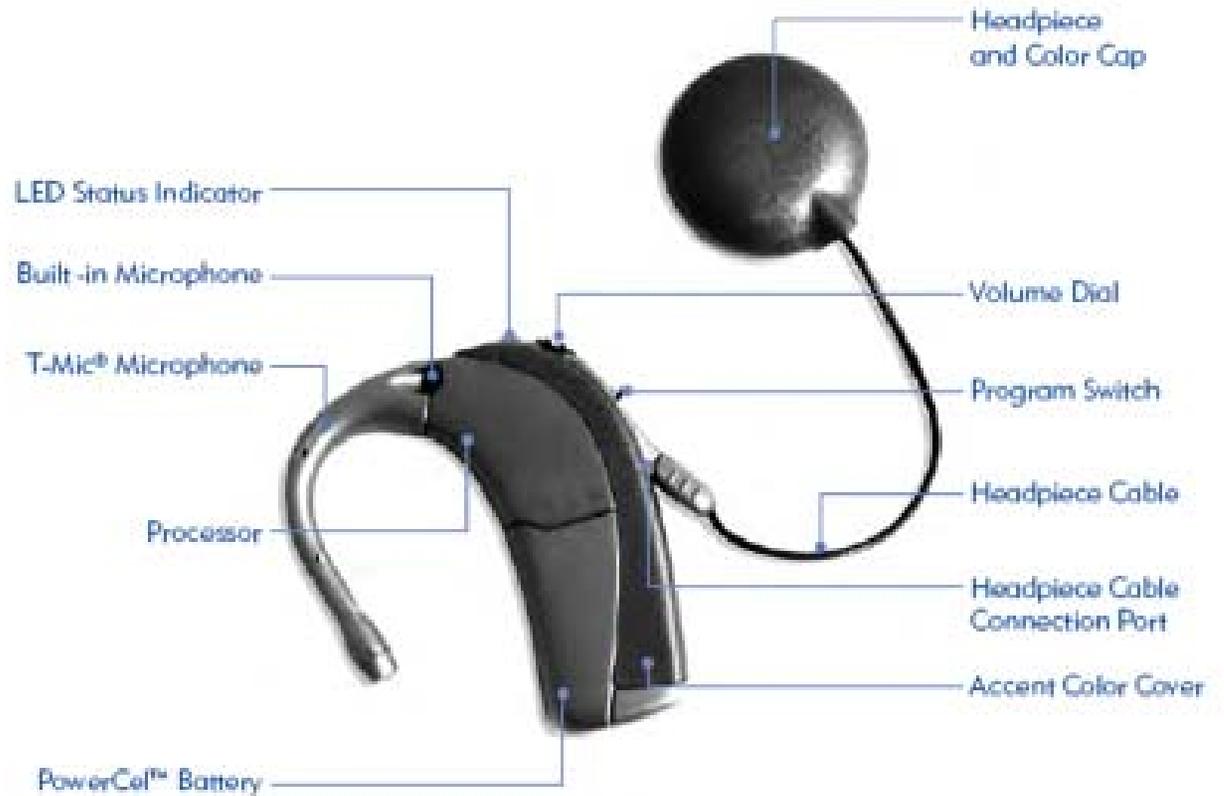
The menu bar at the bottom of each page will provide you with a way to return to your last selection should you get lost or return you to the main menu.

As a reminder, you can also call Advanced Bionics On-Call Support at 877-829-0026, Monday – Friday, 5 AM – 5 PM Pacific Time

Press the Start button to begin



Harmony™ Sound Processor



We encourage you to review the processor components before proceeding.

Next

Choose from the item below that best describes your situation:



I want to learn how to perform a task

I need help with troubleshooting a problem

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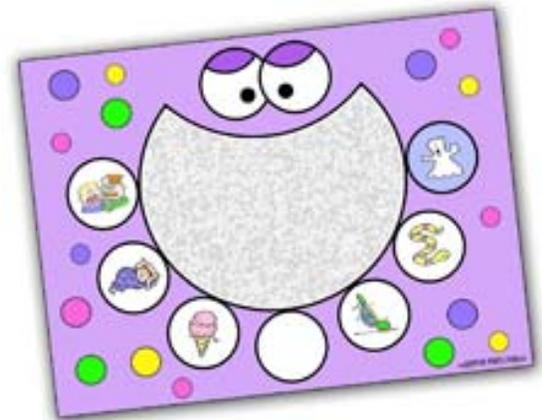
How do I.....

- Check the device each day?

- Connect to an FM system?



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How to Verify the Child's Device is Working

1. Is the PowerCel in place and fully charged?

- Sliding the PowerCel on the Processor module will turn the device on
- You should see 3-4 quick **Orange** blinks verifying the PowerCel is fully charged

2. Is the Headpiece cable plugged into the processor module?

- Check to see the cable is not twisted or frayed

3. Is the Earhook properly positioned?

- To Attach: Align the Earhook flush with the Harmony and push to snap in place. Gently pull back to confirm that the Earhook is secure.
- To Remove: Turn the Earhook slightly more than $\frac{1}{4}$ turn in either direction until it comes off.

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How to Verify the Child's Device is Working

4. Is the Program Selector in the desired position?

- The Harmony can store up to 3 programs (P1, P2, P3). The Program Switch has three positions to represent each program. P1 is at the bottom, P2 is in the middle and P3 is at the top.

5. Is the Volume Control in the 12 o' Clock position?



6. Is the Processor in a comfortable position behind the ear?

- An Earmold, Huggie or Toupee Tape can be used to help secure the processor on the child's ear.

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How to Verify the Child's Device is Working

7. Is the Headpiece positioned over the Implant (internal device)?

- You should feel the magnetic attraction
- You should also see the LED flash **GREEN** in response to loud sounds

8. Perform a Behavioral Listening Check

- Use the Ling Six Sound Check to verify that the child is able to detect all aspects of speech.
- I am unsure how to perform this task, tell me more...

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Performing a Behavioral Listening Check

- ***Using the Ling Six Sounds (ah, ee, oo, sh, s and mm) you can determine a cochlear implant's effectiveness by verifying that the child is able to detect all aspects of speech as the six sounds encompass the frequency range of all phonemes.***

Six-Sound Speech Test Instructions

For Schoolchildren	For a Very Young Child
1. Position the listener one to two yards from you, and ask him/her to "listen."	1. For a very young child you will need to teach detection through a behavioral response.
2. If this is the first time the person has completed the task, demonstrate what is expected.	2. Use of real objects to represent each of the Ling Sounds is recommended, using the pictures on the cards as recommendations (e.g., ghost, airplane).
3. Using a normal conversational level, present each of the sounds through listening alone.	3. While giving the child a quiet distraction, provide a long baseline of silence and then make one of the Ling sounds through audition alone and without any toys.
4. Occasionally say nothing while doing the test. This way, a listener learns that it is okay to say that he/she does not hear anything. Remember to present the Ling Sounds in a random order so the child doesn't learn the pattern of presentation.	4. If the child looks, repeat the sound without showing the object. When you have the child's attention, first through listening, reinforce his attention by showing the corresponding toy and then repeating the sound again; provide waiting time so the child can process the sound.
5. If the child is able to detect the sounds, progress to a discrimination task and then an identification task by asking the child to point to the correct picture. The goal is to have the child naturally repeat the Ling Sound.	5. After a few minutes, say another sound and present the corresponding toy in the same way. Present all the Ling Sounds as long as you can maintain the child's attention. If attention is poor, change tasks and try again.

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Connecting to an FM System

1. Ensure that you have the appropriate equipment.

- iConnect Earhook
- MLxS
- Transmitter



2. Ensure that the FM system is functioning appropriately by listening to the FM system through an amplified speaker or walkman-style earphones.

3. Make sure all components are turned off

4. Attach the iConnect Adapter Earhook and MLxS module to the Harmony

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Connecting to an FM System

5. Insert a size 10 zinc air battery into the iConnect
6. Turn down the volume on the Harmony Processor
7. Turn on the FM transmitter, MLxS, and slide the PowerCel onto the Harmony
8. Make sure the following settings are in place:
 - 1 dot setting on the MLxS
 - 50/50 mixing ratio on the Harmony Program
 - Transmitter microphone in omni-directional mode

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Connecting to an FM System

9. Gradually turn up the volume on the Harmony Processor
10. Assess performance:
 - In quiet using an auditory only task
 - Verify FM benefit by determining performance in noise – CI+FM
 - Perform daily functional checks and monitor performance



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I need help troubleshooting the following:

- Child is NOT responding to Sound
- The Light (LED) on the Processor is Flashing
- Sound appears to be Intermittent
- Headpiece will not stay on
- Child's voice sounds muffled or different

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Child is NOT responding to sound—

**Note you have verified no response with a behavioral listening check.*

1. Verify the Sound Processor is ON
 - Remember that sliding on the PowerCel turns the processor on
2. Check your connections including PowerCel, Earhook and Headpiece-Cable
 - Make sure they are secure
3. Verify that the Volume Dial is in the 12 o' clock position

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Child is NOT responding to sound—

**Note you have verified no response with a behavioral listening check.*

4. Is the Headpiece positioned over the implant site?
 - Busy children can knock it off and may not be able to put it back in place.

5. Is your PowerCel charged and inserted properly?
 - The LED will flash 3-4 quick Orange flashes letting you know it is fully charged.

6. Are you using the appropriate program?
 - You may need to check with the parent or audiologist for this information.

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Child is NOT responding to sound—

**Note you have verified no response with a behavioral listening check.*

7. Check the Microphone/System Status using the LED
 - I would like to learn more about LED functionality

8. Replace the Headpiece/Cable
 - You should keep spare equipment on hand
 - To order equipment contact us now

9. Clean the contact on both your PowerCel and Harmony Processor
 - Learn how

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Harmony LED Functionality Chart

Color	Feature	Harmony LED Functional Description	Programmable
Orange	PowerCel Status	When a PowerCel is inserted onto the processor module, the ORANGE LED will blink as follows: <ul style="list-style-type: none"> • 3 to 4 quick flashes indicates that the PowerCel is fully charged, • 2 quick flashes indicates that the PowerCel is sufficiently charged to power the system, • 1 quick flashes indicates that the PowerCel charge is nearly depleted. • 0 flashes - change battery immediately. 	No
	Low Battery Indicator	When the PowerCel is near depletion, a steady ORANGE light will illuminate indicating that it is time to change the PowerCel. Once the battery is fully depleted, no light will emit from the processor and no sound will be transmitted to the implant. Replace PowerCel as soon as possible.	Yes
	Change Battery Indicator	When the PowerCel is depleted to the point that it is unable to support stimulation but not completely depleted, the ORANGE light will blink twice every 3 seconds and no sound will be transmitted to the implant.	Yes
Green	Mic/System Status	Flashes in response to loud sounds when connected to the CPI or standalone. The Status LED is automatically disabled when the built-in telecoil is enabled. The GREEN light will NOT flicker in response to loud sounds if the built-in telecoil is enabled and/or when AGC is disabled.	Yes
	Mic Test Mode	Steady green light indicates an empty program slot available for mic testing.	No
Red	Lock Status	Blinks at 1 second interval indicating no lock with implant.	No
	IntelliLink™	Rapid blinks (indicates wrong implant is connected).	No
	Error Conditions	Steady - fully remove and reinsert PowerCel to reset processor.	No

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Child is NOT responding to sound—

**Note you have verified no response with a behavioral listening check.*

10. Remove any materials that may be covering the microphone (i.e. Scarf, Hat, Headband)
11. Perform a test of the built in microphone using an empty program slot
 - Learn how
12. Try another audio input source
 - Such as an Auxiliary Microphone or your Direct Connect Earhook interfaced with an audio device (i.e., CD/MP3 player).
 - Learn how

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Child is NOT responding to sound—

**Note you have verified no response with a behavioral listening check.*

13. Check for visible damage on the processor
14. Contact the audiologist for further troubleshooting
 - Contact us now!

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The Light (LED) on the Processor is Flashing....

1. What is the color of the flashing light?

- **Orange** (Battery)

- **Green** (Microphone)

- **Red** (Communication Error)

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Orange LED can mean the following:

1. PowerCel Status

- 3 to 4 quick flashes indicates the PowerCel is fully charged.
- 2 quick flashes indicates the PowerCel is sufficiently charged to power the system.
- 1 quick flash indicates the PowerCel is nearly depleted
- 0 change the PowerCel immediately

2. Low Battery Indicator

- Steady Orange Light will emit when the PowerCel is near depletion

3. Change Battery Indicator

- When the PowerCel is depleted to the point that it is unable to support stimulation but not completely depleted, the orange light will blink twice every 3 seconds and no sound will be transmitted

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Green LED can mean the following...

1. Microphone System Status
 - A green light will flash in response to loud sounds
2. Microphone Test Mode
 - A steady green light indicates an empty program slot is available for microphone testing

Red LED can mean the following...

1. Lock Status

- Blinks at 1 second intervals indicating no lock with the implant

2. Intellink™

- Rapid blinks indicating wrong implant is connected

3. Error Conditions

- Steady light indicates a processor error
- Remove the PowerCel and re-insert it to reset the processor

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Sound is intermittent:

1. Verify the Sound Processor is ON
 - Remember that sliding on the PowerCel turns the processor on
2. Check your connections including PowerCel, Earhook and Headpiece-Cable
 - Make sure they are secure
3. Verify that the Volume Dial is in the 12 o' clock position

Sound is intermittent—

4. Is the Headpiece positioned over the implant site?
 - Busy children can knock it off and may not be able to put it back in place.
5. Is your PowerCel charged and inserted properly?
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6. Are you using the appropriate program?
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Sound is intermittent—

7. Check the Microphone/System Status using the LED
 - I would like to learn more about LED functionality
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Sound is intermittent—

13. Check for visible damage on the processor
14. Contact the audiologist for further troubleshooting

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Headpiece will not stay on.....

1. CAUTION: adding too many magnets to the headpiece may cause physical discomfort and can potentially damage the skin around the implant site
2. How long has it been since surgery? Swelling is common for 1-2 months following surgery.
3. If significant time had elapsed, you may try the following:
 - Use of an earmold, huggie or toupee tape will help keep the headpiece on as it will assist with the weight of the processor so it does not pull the headpiece off.
 - Other suggestions:
 - Temporarily shave hair around the implant site
 - Apply pressure to the headpiece with a headband, baseball cap, etc.
 - Refer to audiologist for further troubleshooting

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Child's voice sounds muffled or distorted

1. Is the processor turned on?
2. Are the connections secure?
3. Is the Volume Control in the 12 o' Clock position?
4. Verify the LED status
 - Learn how
5. Perform a behavioral listening check
 - Learn how
6. Perform test of the built-in Microphone
 - Learn how
7. Refer back to "Sound is Intermittent" section for additional steps
 - Go now

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Performing a test of the built-in Microphone

1. Note: To assess the microphone, you will need to have an empty program slot on the processor. You will also need a Direct Connect system and an Audio Interface Cable
2. Using the Mic Tester Headphones supplied by Advanced Bionics attach to the Direct Connect
3. Set the program switch to an empty program slot (solid green light/LED should emit)
4. Connect a charged PowerCel
5. Speak in a normal voice and monitor output



Microphone Tester Earphones

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Performing a Behavioral Listening Check

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How to Try another Audio Input Source

1. By connecting the direct connect system, audio interface cable and either an auxiliary microphone or portable listening device you can verify if the child can receive sound through another sound source.
2. Should the child receive sound with another audio source this verifies that the processor microphone is not functioning.
3. Contact the family and/or managing audiologist for further assistance.



Auxiliary Microphone



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Auxiliary Microphone



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Cleaning the Processor and PowerCel Contacts

1. To prevent intermittent operation of the Processor, contacts on both the PowerCel and Processor should be kept free from dirt, dust, perspiration or moisture.
2. Clean the contacts with a soft bristle brush (a hearing aid brush is best) at least once a month.

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I need more information.....

1. Speak to an Audiologist to ask further questions

2. Learn more on-line about the Harmony Processor



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ADVANCED
BIONICS

Speak to an Audiologist

Please call us for further assistance:

- Hours of Operation: 5 AM to 5 PM PST
(877) 829-0026 US and Canada
(800) 678-3575 TTY
(661) 362-1400 ext. 2101

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