Cochlear™

Nucleus® CP910 and CP920 Sound Processor

User Guide

Hear now. And always

Cochlear®

About

Your Cochlear™ Nucleus® CP910 or CP920 ("CP900 series") Sound Processor works with your cochlear implant to transfer sound to the ear. Your processor is made up of a processing unit, earhook, coil, coil cable and a battery module.

You can choose either the CP910 or the CP920 processing unit. The CP920 processing unit has no accessory socket and is smaller than the CP910 processing unit.

You can power your processing unit with a range of battery modules. The range includes a tamper resistant battery module that uses disposable batteries, a standard rechargeable and compact rechargeable battery module, and a LiteWear cable that allows the battery to be worn on the body.

You can control your sound processor as a stand-alone device by pressing the buttons on the processor. All stand-alone functions are covered in this guide.

This guide is intended for cochlear implant recipients and their carers using the Cochlear™ Nucleus® CP910 or CP920 Sound Processors.

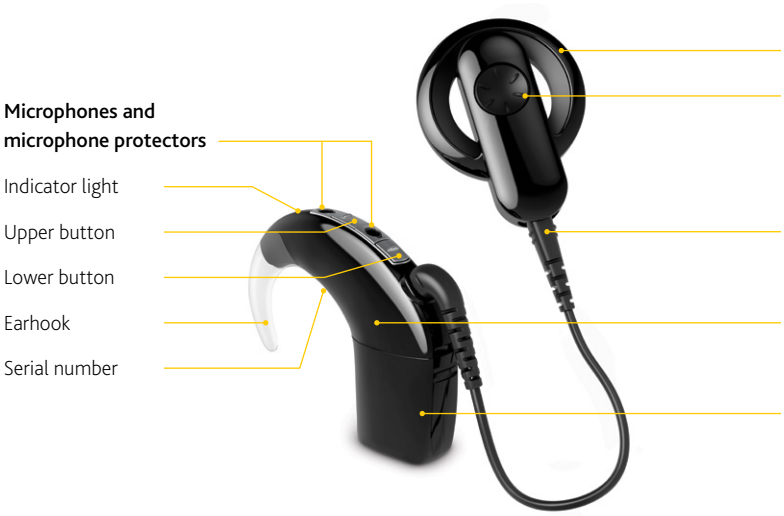
NOTE
Refer to the Warnings section for warnings and cautions relating to the use of the CP900 series sound processors, batteries and components.

CP910 Sound Processor

with Standard Rechargeable Battery Module

CP920 Sound Processor

with Compact Rechargeable Battery Module



You can also choose a Cochlear™ Nucleus® CR210 Remote Control or CR230 Remote Assistant to control your processor. The remotes let you control one or two processors at a time and can provide extra troubleshooting functions. For more about remotes, please consult your remote user guide.

NOTE
Please refer to the booklet *Important Information: Warnings, Precautions and Electromagnetic Compatibility* for important information that applies to cochlear implant systems.

A number of tools and accessories are supplied with your sound processor.

Symbols

Note
Important information or advice.

Tip
Time saving hint.

Caution (no harm)
Special care to be taken to ensure safety and effectiveness. Could cause damage to equipment.

Warning (harmful)
Potential safety hazards and serious adverse reactions. Could cause harm to person.

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Batteries

You have a choice of three battery types with the CP900 series processors:

The Cochlear™ Nucleus® CP900 Series Standard Rechargeable Battery Module.

The Cochlear™ Nucleus® CP900 Series Compact Rechargeable Battery Module.

The Cochlear™ Nucleus® CP900 Series Standard Tamper Resistant Battery Module, which uses two disposable batteries and has a tamper resistant lock.

Battery life

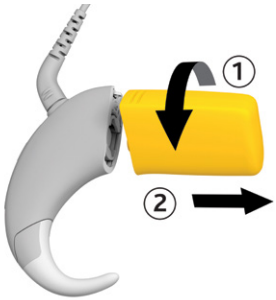
Batteries should be replaced as needed just as you would with any other electronic device. Battery life varies according to the programs used each day, the thickness of skin covering your implant, and the size and type of battery.

The rechargeable battery's lifespan is at least 365 charge cycles. A completely empty rechargeable battery will take approximately four hours to recharge.

Rechargeable batteries may take longer to fully recharge with age. To get the longest life from the rechargeable batteries, always recharge before use.

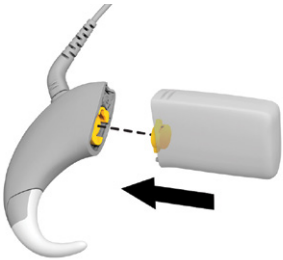
Replace the battery

Remove the battery

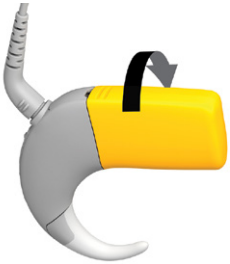


1. Twist the battery module as shown to remove it from the processing unit.

Attach the battery



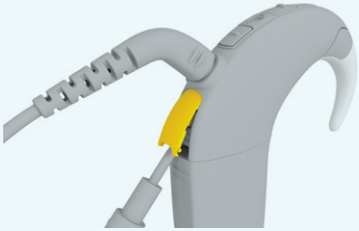
1. Align the battery module to the processor socket to fit the parts together.



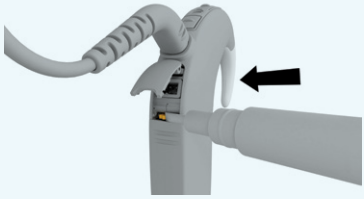
2. Twist the battery module as shown to attach the parts. The processor will turn on automatically.

Lock/unlock the battery module to the processing unit

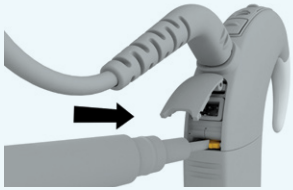
CP910 Processing Unit



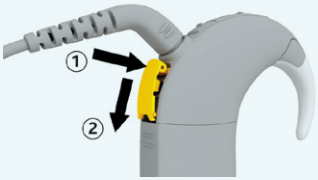
1. To increase tamper resistance, carefully lift open the accessory socket cover with your battery cover locking tool. Do not twist the cover.



2. Push the lock to the far left to lock the battery module.



3. Push the lock to the far right to unlock the battery module.

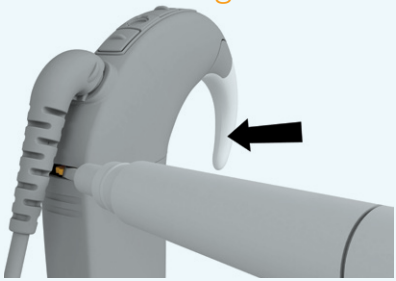


4. Carefully close the cover by pushing in the top hinge first.

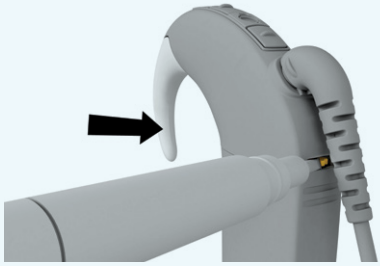
CAUTION
Always check this lock is unlocked before attaching or removing the battery module.

TIP

CP920 Processing Unit



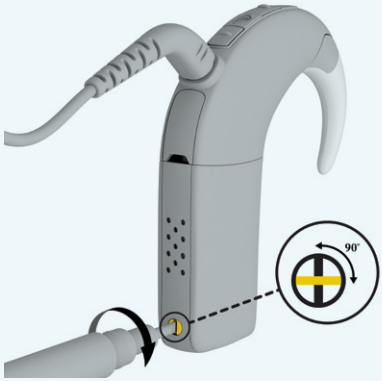
1. To increase tamper resistance, push the lock to the far left with your battery cover locking tool to lock the battery module.



2. Push the lock to the far right to unlock the battery module.

Lock and unlock the standard tamper resistant battery cover

The standard tamper resistant battery cover has a tamper resistant lock to help prevent children opening the battery cover.



1. To lock, turn the locking screw clockwise with the battery cover locking tool until it is in a horizontal position.

2. To unlock, turn the locking screw anticlockwise until it is in a vertical position.

Charge rechargeable battery modules

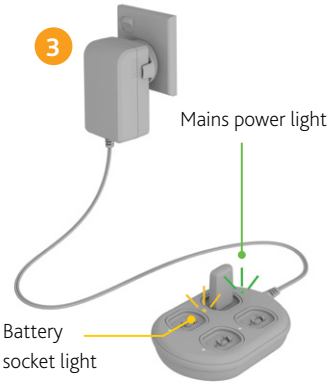
1

Angle and fit the rechargeable battery module into a socket on the Cochlear™ Nucleus® Battery Charger.

2

Twist clockwise to connect.

3



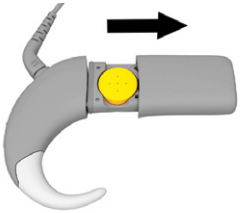
Connect the battery charger to the power adaptor and plug into mains power.

MAINS POWER LIGHT	WHAT IT MEANS
Steady green	Battery charger power is on.
Does not light up	Power adaptor is not plugged in or mains power is not available (or, if switched, is not turned on).

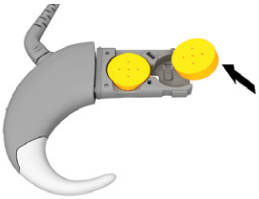
BATTERY SOCKET LIGHT	WHAT IT MEANS
Steady orange	Battery module is recharging.
Steady green	Battery module is fully charged.
Flashing orange	There is a problem with the battery module. Try a different socket. Replace the rechargeable battery module.
Does not light up	Battery module is not properly placed, is over-discharged, or there is no power. Check the battery charger is powered on and reconnect the battery charger. If it still does not light up, replace the battery module.

Change disposable batteries

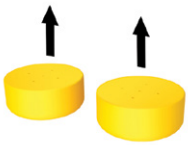
The Cochlear™ Nucleus® CP900 Series Standard Tamper Resistant Battery Module uses two high power zinc air disposable batteries. Cochlear recommends power one IMPLANT plus p675 zinc air batteries. Do not use silver oxide or alkaline batteries.



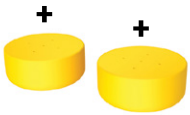
1. Pull the unlocked battery cover away from the battery holder.



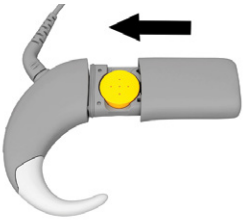
2. Remove the batteries from the battery holder.



3. Remove the new batteries from the packet and let them stand for a few seconds.



4. Insert the batteries into the battery holder with the flat side (positive terminal) facing up.



5. Replace the battery cover by sliding it up towards the processing unit. The processor will turn on automatically.

See *Batteries* on page 76.

Turn on

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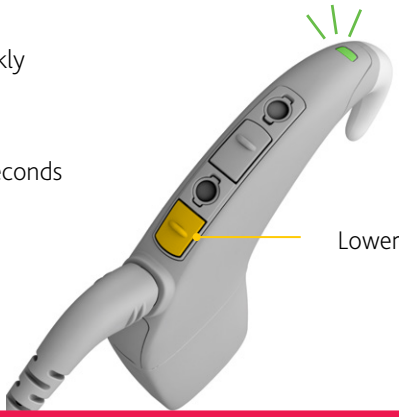
Turn on and off

Either connect battery module or quickly press lower button to turn on.

Press and hold lower button for two seconds to turn off.



INDICATOR LIGHTS	WHAT IT MEANS
● / ●● / ●●● / ●●●● Green flashes	Turning on processor. The number of flashes indicates the number of the current program.
▬ Steady orange while pressing the lower button	Turning off processor.
●●●●● … Quick green flashes	Processor flashes while receiving sound from microphones (if set up by your clinician*).

NOTE
Your clinician may set up your processor to turn off automatically when it has been off your implant for more than two minutes.

* See your Cochlear™ Nucleus® CR230 Remote Assistant User Guide for details about modes.

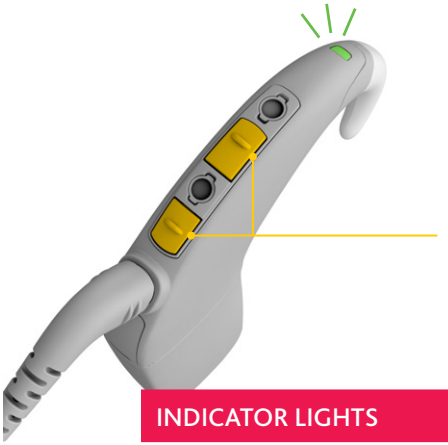
Change programs

You can choose between programs to change the way your sound processor deals with sound e.g. in noisy or quiet places. Usually two programs are all you need, but your clinician can give you up to four programs.

Quickly press and release the lower button to switch between programs.

INDICATOR LIGHT	WHAT IT MEANS
● ● ● ● ● ● ● ● ● ● Green flashes	Changing the program. The number of flashes indicates the number of the current program.

Lock and unlock buttons



Quickly press and release both buttons at the same time to lock and unlock the processor.

INDICATOR LIGHTS	WHAT IT MEANS
Green flash followed by orange	Locking processor buttons.
Orange flash followed by green	Unlocking processor buttons.
Orange flash when pressing buttons	Processor buttons are locked.

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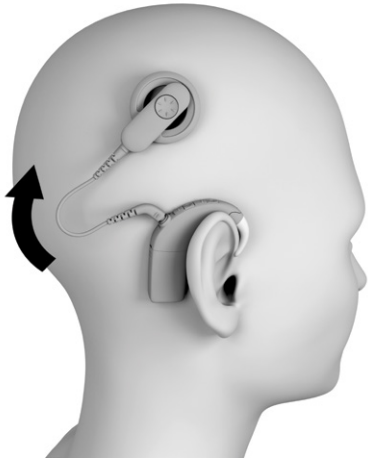
Wear your processor

1

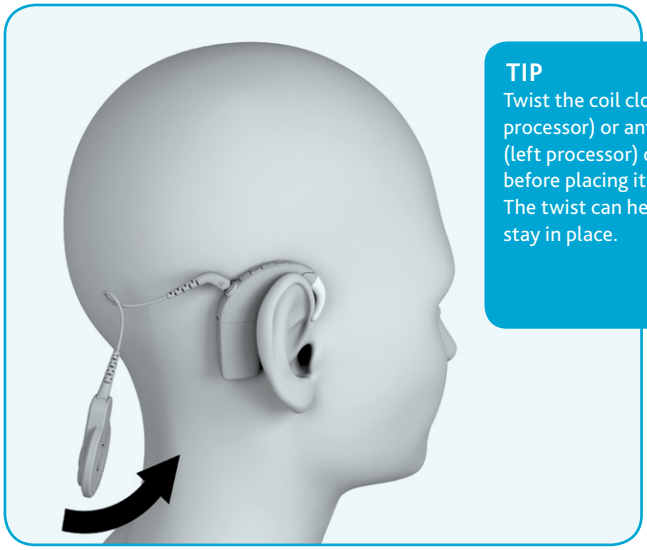
Place the processor on your ear, letting the coil dangle.

2



Move the coil sideways and onto your implant.

INDICATOR LIGHTS	WHAT IT MEANS
● ● ● Flash of orange every second	Processor flashes while coil is off (or connected to the wrong implant).



TIP

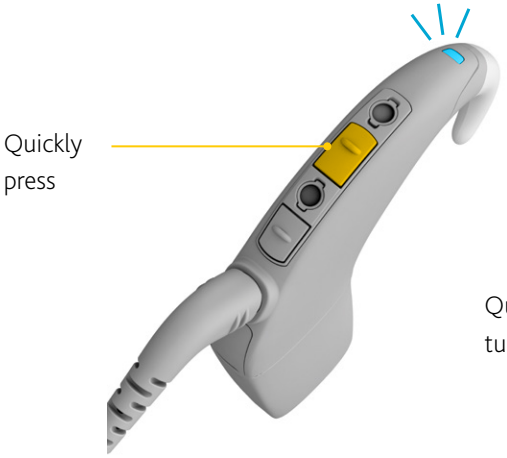
Twist the coil clockwise (right processor) or anticlockwise (left processor) once ONLY before placing it on the head. The twist can help the coil stay in place.

Talk on the phone

Listen to hearing loops and hear voices on the telephone with the telecoil. Your clinician can set up your processor with manual telecoil and also auto telecoil. Auto telecoil detects the telecoil signal automatically.

When you use a telecoil-compatible telephone or move in range of a hearing loop, auto telecoil switches to 'receiving'. When there is no signal, e.g. you are out of range of a hearing loop, auto telecoil switches to 'standby' (not receiving).

Whether you choose auto or manual telecoil, you can control the telecoil with your remote. You can turn manual telecoil on and off with your processor.



Quickly press the upper button to turn manual telecoil on and off.

NOTE
Certain electronic devices or machinery may automatically turn on auto telecoil (you may hear a buzzing noise). If this happens, move away from the device or machinery and wait a few seconds for auto telecoil to turn itself off, or turn it off manually.

TIP
For optimal telecoil performance, position your phone's speaker about 1 cm below the front microphone of your sound processor. It may take a few moments to find the best position.

INDICATOR LIGHTS	WHAT IT MEANS
●●●●● … Quick blue flashes	Processor flashes while receiving sound from telecoil/audio accessory (if set up by your clinician*).
Long flash of blue	Changing from microphone to telecoil/ audio accessory.
Long flash of green	Changing from telecoil/audio accessory to microphones.

* See your Cochlear™ Nucleus® CR230 Remote Assistant User Guide for details about modes.

Water, sand and dirt

Your sound processor is resistant to water, sand and dust. However, it is still a precision electronic device so the following precautions should be taken.

If your processor ever gets wet, dry it with a soft cloth, change the microphone protectors and place it in the dry aid kit provided by Cochlear for 8 hours.

If sand or dirt ever enter the processor, shake the components carefully to remove it and change the microphone protectors.

Your processor is protected against failure from dust and temporary immersion in water (IP57 rated) when you wear it with:

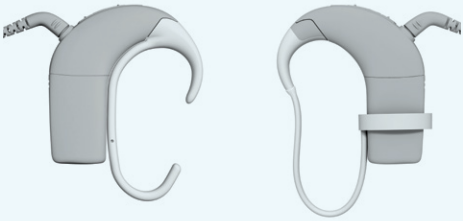
- a rechargeable battery module
- a coil and coil cable
- a closed accessory socket.

Your processor is protected against failure from splashing water or access of foreign objects 1.0 mm in diameter or larger (IP44 rated) when you wear it with:

- a tamper resistant battery module
- a coil and coil cable
- a closed accessory socket.

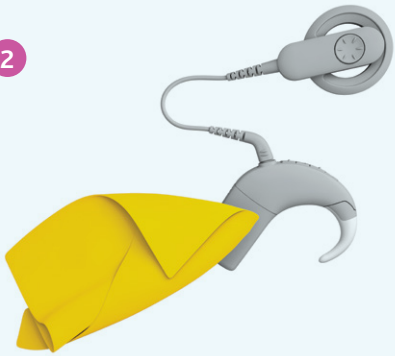
Sport and exercise

1



Use Cochlear CP900 series accessories such as the Snugfit™ or Mic Lock to help hold your processor in place when you play sport or exercise.

2



After exercise, wipe your processor with a soft cloth to remove sweat or grime.

3

Then check your microphone protectors.

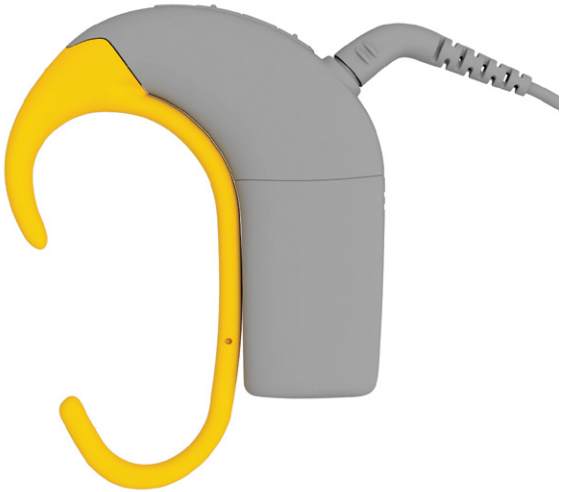
Rechargeable batteries give you the maximum water and sweat resistance.

TIP

Accessories like the Snugfit or Mic Lock can help hold a processor on a child's ear. Tamper resistant accessories such as the tamper resistant earhook, tamper resistant battery module and tamper resistant Snugfit are available. Always ensure these are properly locked together before use.

Wear a Snugfit

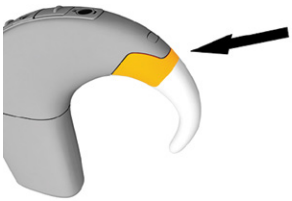
The Cochlear™ Nucleus® CP900 Series Snugfit™ holds your sound processor more securely in place than an earhook alone. It gives carers easy access to controls and accessories and is available in large, medium and tamper resistant (small).



TIP
You can wear Snugfits with sound processor covers and coil covers.

Attach a Snugfit

1. Press firmly on the top of the earhook with your thumb to click it off the sound processor.



2. Click your Snugfit into place.

3. Carefully bend the lower part into shape to suit your ear.

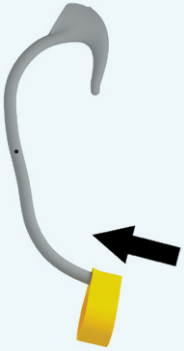
Remove a Snugfit

1. Remove your Snugfit by clicking it off the processor.

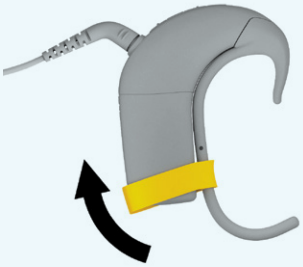
TIP

Attach a Tamper Resistant Snugfit

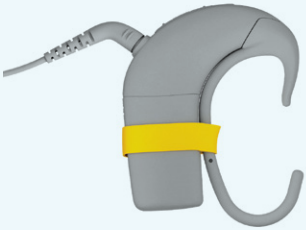
1. The smallest Snugfit comes with a Snugfit band to fix it more securely to the processor.



2. Thread the Snugfit band onto the Snugfit as shown.



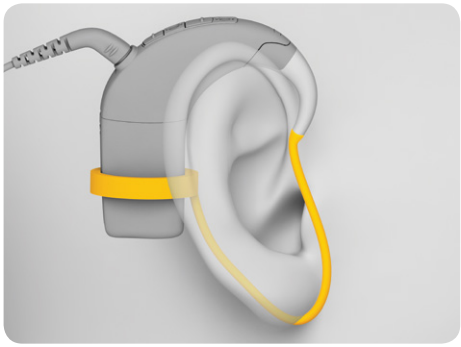
3. Click the Snugfit into place on the processor and push the Snugfit band onto the battery module.



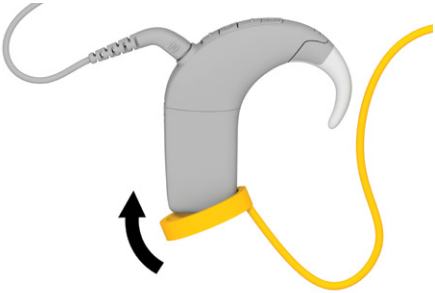
4. Push the band securely onto the battery module.

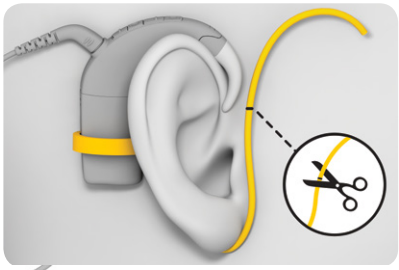
Wear a Mic Lock

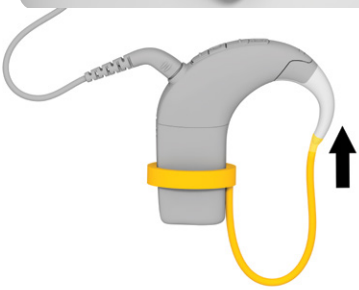
The Cochlear™ Nucleus® Mic Lock helps hold the processor securely on the ear.



To attach the Mic Lock the first time:







1. Push the Mic Lock band onto the processor with the tubing facing forward.
2. Place the processor on your ear and bring the tubing up to the earhook.
3. Trim the tubing to a length that will hold the processor firmly in place without discomfort. Do not cut it too short.
4. Soften the end of the tubing in warm water and push it onto the tip of your earhook.
5. Let the tubing cool before wearing.

Wear LiteWear

The Cochlear™ Nucleus® CP900 Series LiteWear Cable allows any standard (not compact) battery module to be worn on the body – so only the processing unit is worn on the ear. You can order LiteWear from Cochlear or talk to your clinician.

LiteWear is made up of a LiteWear cable, case and a choice of fixing aids.

NOTE
You can wear a Snugfit with LiteWear to hold the processor more securely on the ear.

TIP
To help prevent tampering, attach the LiteWear case between the shoulder blades of very young children.

Travel

NOTE
Visit www.cochlear.com/clinic-finder to find the nearest clinic in places you are travelling.

- Take a printout of your most recent program in case you need help with your processor.
- If you have a back-up sound processor, check that it is programmed correctly and take it with you.
- It's okay to move through metal detectors and full body scanners with your sound processor on. To avoid any possible buzzing sounds in your ear, turn off the telecoil.
- Ask your clinician for a Nucleus 6 Patient Identification Card. In the unlikely event that your implant sets off a metal detector the ID card will help explain that you have an implanted medical device.
- Do not place sound processors directly onto conveyor belts as you move through airports. Place them in a bag or plastic tray.
- Your sound processor will not interfere with a plane's navigation system so you won't need to turn it off during takeoff and landing. For advice about using your remote control or remote assistant on a plane, refer to the Important Information Booklet.

Audio accessories

NOTE
The CP910 sound processor is compatible with the CP800 range of audio accessories. You can order adaptors to make your CP910 sound processor compatible with Freedom and Euro accessories. Your CP910 sound processor is NOT compatible with the Baha® range of audio accessories.

The accessory socket on the CP910 processing unit lets you connect a wide range of audio accessories.

For example, you can choose audio accessories that help you listen to portable music players, smart phones, computers, TV sets etc. Bilateral recipients can listen in stereo.

You can choose audio accessories that make conversation easier in noisy environments.

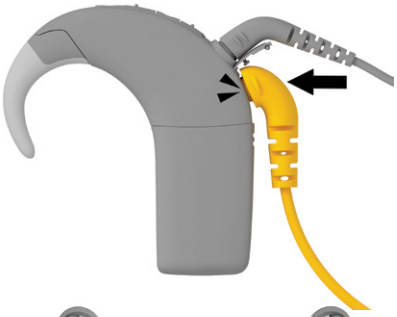
Carers can use a monitor earphone to check that the processor and audio accessories are receiving sound.

You can order and learn more about accessories at the Cochlear website.

Connect audio accessories

To connect an audio accessory to the CP910 processor:

1. Carefully lift open the accessory cover with the battery cover locking tool. Do not twist the cover.



2. Hold the side grips on the accessory connector and carefully push it into the accessory socket until it clicks into place.

3. When you connect an audio accessory, your processor automatically detects it.

4. If applicable, insert the other end of the audio accessory cable into the compatible device e.g. a portable music player.

WARNING

Always use the mains isolation cable when connecting any personal audio cable (including bilateral) to:

- a mains powered device, e.g. a TV.
- a battery powered device that is connected to mains power (e.g. a laptop connected to an electric outlet for charging).

Do not use excessive force, twist or pull on accessories when connecting them to the processor or at any time while they are connected.

Turn audio accessories on and off

Audio accessories turn on automatically when you plug them into your processor.

Quickly press

Quickly press the upper button to switch between microphones and the audio accessory.

INDICATOR LIGHTS	WHAT IT MEANS
●●●●● … Quick blue flashes	Processor flashes while receiving sound from telecoil/audio accessory (if set up by your clinician*).
Long flash of blue	Changing from microphone to telecoil/ audio accessory.
Long flash of green	Changing from telecoil/audio accessory to microphones.

* See your Cochlear™ Nucleus® CR230 Remote Assistant User Guide for details about modes.

Personalise your processor

You can order Cochlear™ Nucleus® Sound Processor Covers and Coil Covers to personalise your processor and protect it from scratches.

Attach and remove processor covers

1. To attach, slide the cover onto the processor.
2. To remove, pull the cover away from the processor.

Attach and remove coil covers

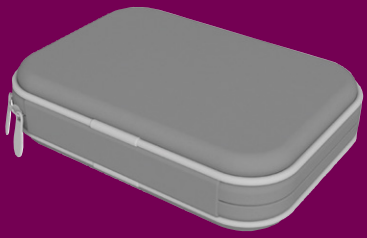
1. To attach, discard the clear plastic protector on the cover and click the cover into place on the coil.
2. To remove, lift the cover off the coil.

Bilateral stickers

If you have two Cochlear implants, you must match the correct processor to the correct implant. Ask your clinician to give you bilateral stickers (red for right, blue for left) to make identifying left and right processors easier.

Dry aid kit

Store your processor at night in the dry aid kit provided by Cochlear. Store the processor fully assembled for 8 hours for optimal drying effect.



Storage case

For long term storage, remove the batteries and store so they are not touching. Storage cases are available from Cochlear.

Store

Care

Care for your sound processor 44
Replace microphone protectors 45
Care for your battery charger 49
Change earhooks 50
Change the coil cable 55
Change the coil magnet 56

Care for your sound processor

Every day

- Check all parts for dirt and moisture. Wipe the processor, coil cable, earhook, covers, Snugfits and Mic Lock cables with a soft dry cloth. (You can leave the earhooks, Snugfits, Mic Locks or coil cables on the processor while cleaning.)

- Keep your processor free from moisture by drying it every night in your dry aid kit.

- Remove the battery module and make sure all the contacts are clean. Carefully tap or blow on them to remove any dirt.

- Make sure the accessory socket and audio accessories are clean. Blow on the accessory socket to remove any dust and clean accessories with a soft dry cloth.

- Check the microphone protectors for signs of dirt or grime and replace if needed.

Every month

- Check if earhooks or Snugfits are becoming loose or showing signs of wear. Replace as needed.

Every two months

- Replace the dry brick in your dry aid kit.

Every three months

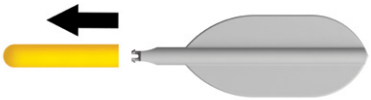
- Replace the microphone protectors.

NOTE
If your sound processor is subject to increased moisture or dusty conditions, consider cleaning and maintaining parts more often to keep it functioning at its best.

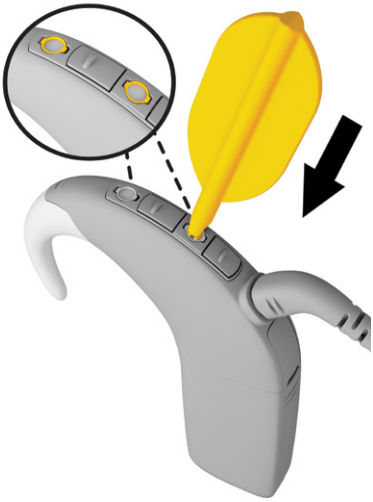
Replace microphone protectors

Replace your microphone protectors every three months, whenever they look dirty or whenever you notice any loss in sound quality. Always replace both microphone protectors at the same time.

Remove microphone protectors



1. Remove the protective cap from the Cochlear™ Nucleus® Microphone Protector Removal Tool.



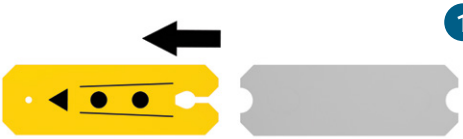
2. Push the tip of the tool into the middle of the microphone protector.

3 Turn the tool 90° clockwise.

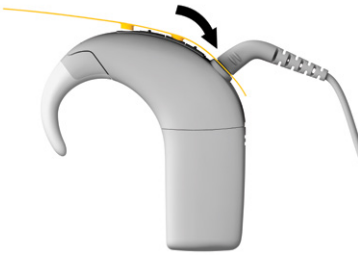
4 Lift out the microphone protector and discard.

5 Repeat steps 2 to 4 to remove the other microphone protector.

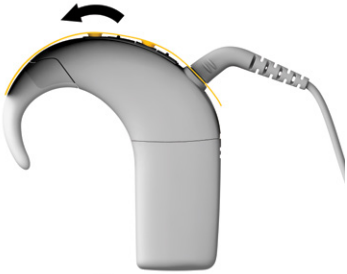
Insert new microphone protectors



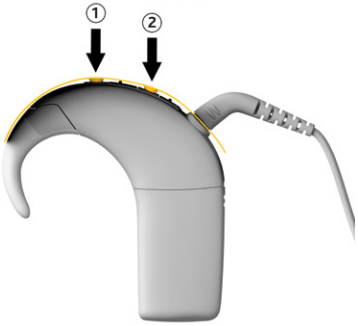
1. Pull the Cochlear™ Nucleus® Microphone Protector Applicator out of its sleeve.



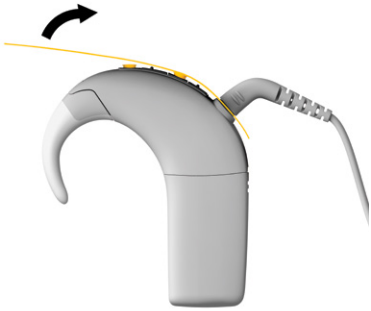
2. With the microphone protectors facing the processor, gently push the slotted end of the applicator under the coil cable plug.



3. Lay the applicator over the processor, aligning the microphone protectors with the microphones.



4. Press the microphone protectors all the way into the microphone holes one at a time.



5. Remove the applicator carefully, peeling it upwards from the earhook end.

Care for your battery charger

Every day

- Check your battery charger is clean. If you notice any dust or dirt:

  1. Unplug the power adaptor and remove any battery modules.

  2. Hold the battery charger upside down and tap it gently to remove any dirt from the battery charger sockets. Carefully blowing on the battery charger sockets may also help remove dirt.

  3. Wipe the battery charger sockets with a soft dry cloth.

- Cycle batteries in different sockets when recharging to wear the sockets evenly.

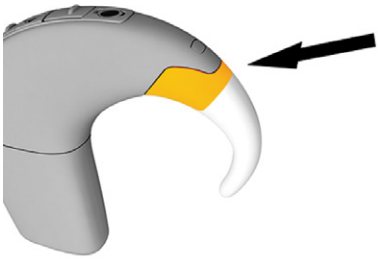
If it gets wet

- If the battery charger ever gets splashed with liquid, carefully shake out the liquid and dry the battery charger for 24 hours. Do not use the battery charger until it is dry.

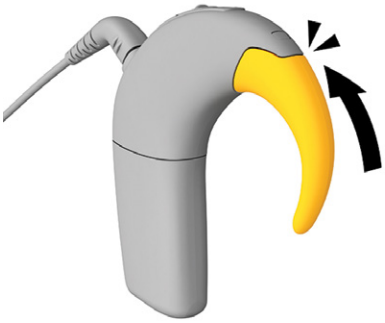
Change earhooks

Cochlear™ Nucleus® CP900 Series Earhooks come in large, medium and small sizes. The smallest earhook can be made tamper resistant.

Change an earhook



1. Press firmly on the top of the earhook with your thumb and click it off the sound processor.



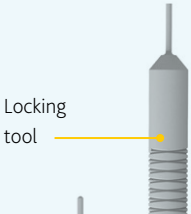
2. Click the earhook into place.

NOTE
Remove your earhook only when necessary – it may become loose if it is removed too often.

TIP

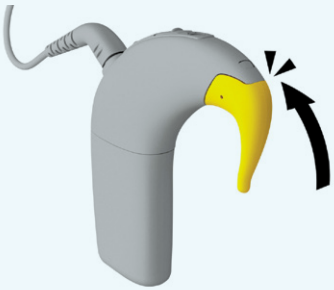
About the tamper resistant earhook

The tamper resistant earhook can be locked to the processor with a fitting pin to reduce the risk of the earhook becoming a choking hazard for young children. Older children and adults can wear it without the fitting pin.

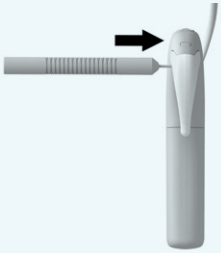


The tamper resistant earhook comes with a locking tool and fitting pins. Use black fitting pins only.

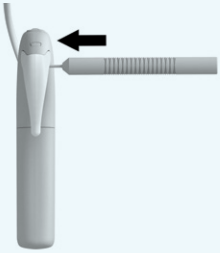
Attach the tamper resistant earhook



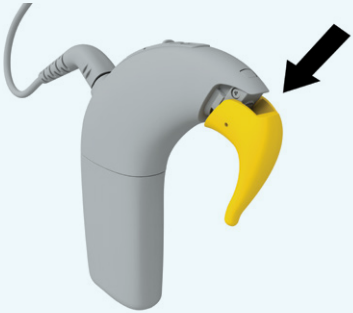
1. Click the tamper resistant earhook onto the processor.



2. Insert the pointed end of the locking tool into the hole in the earhook to clear and align the hole.

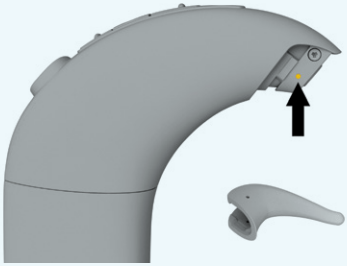


3. Flip the processor and insert the pointed end of the locking tool into the hole on the other side of the earhook to clear and align the hole.



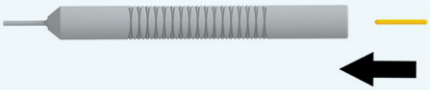
4. Press firmly on the top of the earhook with your thumb and click it off the sound processor.

TIP

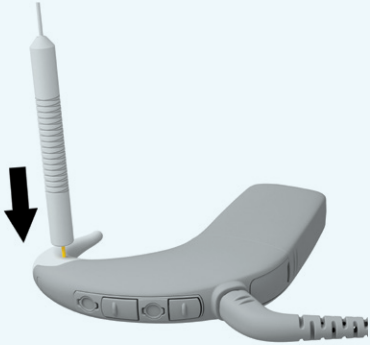


5 Make sure the hole is clear. Blow debris away or clear with the pointed end of the tool.

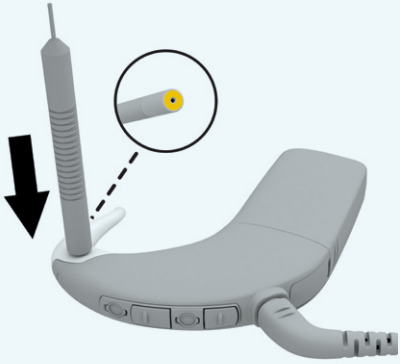
6 Replace the earhook.



7 Insert a fitting pin into the hole on the blunt end of the locking tool.



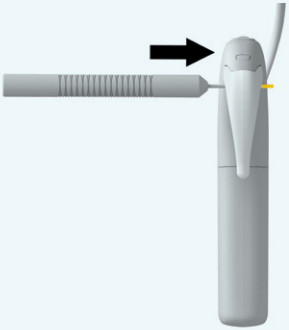
8 Hold the processor on a table. Partly insert the fitting pin into the hole on the earhook.



9 Use a flat part of the blunt end of the tool to completely push the fitting pin in. The fitting pin should not protrude from either side of the earhook.

Remove the tamper resistant earhook

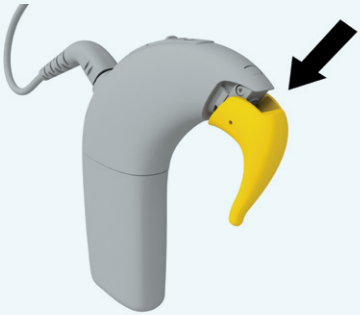
TIP



1. Insert the pointed end of the locking tool into the hole on the earhook.

2. Push the tool into the hole to partly remove the fitting pin. Be gentle as too much force may damage the tool.

3. Lift out the earhook fitting pin.

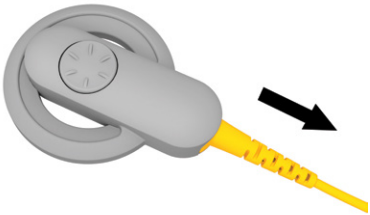


4. Press firmly on the top of the earhook with your thumb and click it off the sound processor.

Change the coil cable

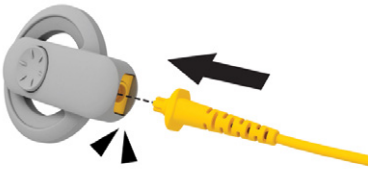
The Cochlear™ Nucleus® CP900 Series Coil Cable comes in four lengths so you can choose the most comfortable fit. Only remove the coil cable when you are changing it.

1. Hold the coil cable grip and firmly pull it straight out of the processor. Do not tug on the flexible part of the coil cable.



2. Use your fingernails to hold the coil cable grip and pull the coil cable firmly off the coil. Do not tug on the flexible part of the coil cable.

3. Push the new coil cable into the processor until it clicks into place.



4. Push the new coil cable into the coil until it clicks into place.

Change the coil magnet

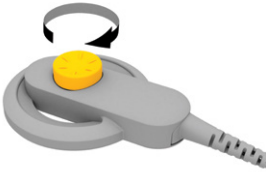
The strength of the Cochlear™ Nucleus® CP900 Series Coil Magnet can be adjusted by changing the coil magnet depth or by replacing with a coil magnet of a different strength. If the coil magnet is too weak or strong the coil may fall off or cause discomfort.

Change the strength of the coil magnet

1. With finger grips facing up, turn the coil magnet clockwise to increase the coil magnet's strength.
2. Turn the coil magnet anticlockwise to reduce its strength.

Change the coil magnet

1. With finger grips facing up, unscrew the coil magnet anticlockwise and remove.



2. Insert the new coil magnet into the coil hole and turn it clockwise until it is at a comfortable depth.

See *Processors and parts* on page 74.

Lights and Beeps

Lights 60
Beeps 62

Lights

Your clinician can set up your processor to show some or all of the following light indications.

Turning on and off

LIGHT	WHAT IT MEANS
Quick blue flashes	Processor flashes while receiving sound from telecoil/audio accessory (if set up by your clinician*).
Quick green flashes	Processor flashes while receiving sound from microphones (if set up by your clinician*).
Quick green flashes	Turning on and changing programs. Number of flashes indicates the number of the current program.
Steady orange	Turning off processor.

Locking buttons

LIGHT	WHAT IT MEANS
Green flash followed by orange	Locking processor buttons.
Orange flash followed by green	Unlocking processor buttons.
Orange flash when pressing buttons	Processor buttons are locked.

Telecoil/audio accessories

LIGHT	WHAT IT MEANS
●●●●● … Quick blue flashes	Processor flashes while receiving sound from telecoil/audio accessory (if set up by your clinician*).
▬ Long flash of blue	Changing between microphones and telecoil/audio accessory.
▬ Long flash of green	Changing between the telecoil/audio accessory and microphones.

Alerts

LIGHT	WHAT IT MEANS
● ● ● … Flash of orange every second	Processor flashes while coil is off (or connected to the wrong implant).
●●●●● Orange flashes	Processor battery is empty. Charge battery.
▬ Steady orange	Fault. Contact your clinician. Stays on until the issue is resolved.

* See your Cochlear™ Nucleus® CR230 Remote Assistant User Guide for details about modes.

Beeps

Your clinician can set up your processor so you can hear the following beeps. The beeps are only audible to the recipient.

Turning on and off

BEEP	WHAT IT MEANS
● ● ● ● ● ● ● ● ● ● Short high beeps	Changing the program. The number of beeps indicates the number of the selected program.
● Short high beep	Changing volume or sensitivity level.
● ■ Short high then short low beep	When changing volume or sensitivity, indicates upper or lower limit of volume/ sensitivity reached.

Locking buttons

BEEP	WHAT IT MEANS
■ Short low beep when you press a button	Processor buttons are locked.
● ■ Short high then short low beep	Locking processor buttons.
■ ● Short low then short high beep	Unlocking processor buttons.

Telecoil/audio accessories

BEEP	WHAT IT MEANS
▬ Long high beep	Switching between using the microphones and the telecoil or audio accessory.

Alerts

BEEP	WHAT IT MEANS
2 Short low beeps	Processor battery is low. Recharge or replace battery.
Short low beeps for 4 seconds	Battery is empty and processor is turning off. Recharge or replace battery.
4 long low beeps over 4 seconds	General fault. Consult your clinician.

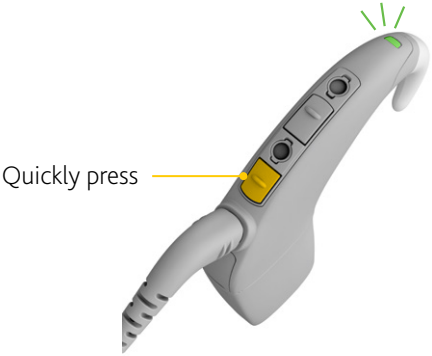
Adjusting bass and treble (Remote Assistant only)

BEEP	WHAT IT MEANS
Loud medium beep	Adjusting master volume level.
Loud long high beep	Adjusting treble level.
Loud long low beep	Adjusting bass level.

Advanced mode

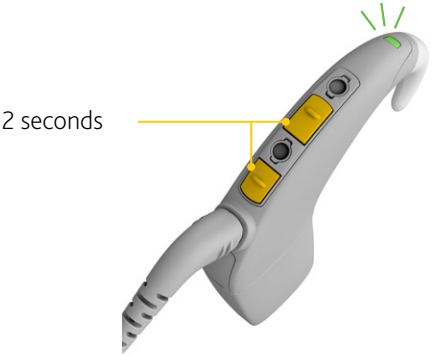
Advanced mode

Sound processors can be set up in Advanced mode by your clinician to give you extra control over the volume and sensitivity of the sound you hear. Advanced mode uses a different set of button presses.



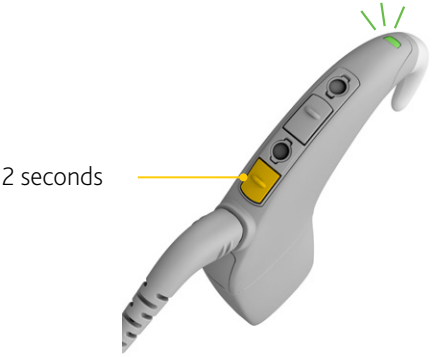
Turn processor on

Quickly press the lower button.



Turn processor off

Press and hold upper and lower buttons at the same time.



Change program

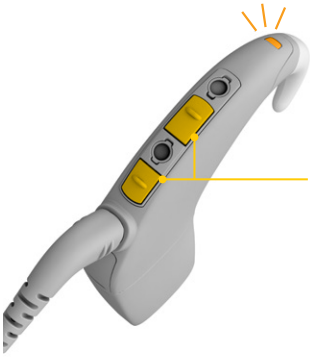
Press and hold the lower button.

Turn telecoil/audio accessory on and off

Press and hold the upper button to switch between microphones and telecoil/ audio accessory.

Lock/unlock processor buttons

Quickly press both the upper and lower buttons at the same time.

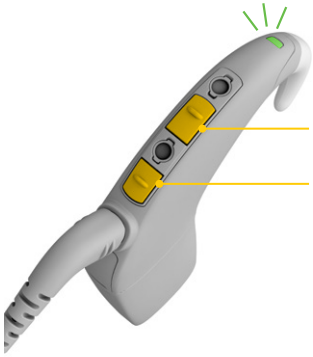


Change volume or sensitivity

Choose between volume and sensitivity and adjust them with your remote.

You can also use the buttons on your sound processor to adjust volume or sensitivity. Volume controls the level of sound you hear. Sensitivity controls the range of sounds picked up by the processor e.g. soft, background, close or far away.

You can select from up to 10 volume levels or 21 sensitivity levels.



Troubleshoot

PROBLEM	RESOLUTION
You are not sure what the processor beeps or indicator light flashes mean (on top of the processor).	See *Lights and Beeps* on page 59.
You want to perform a regular check on your processor	See *Care for your sound processor* on page 44.
You want to confirm your processor is receiving sound	1. Check the light on the top of the processor. See *Lights and Beeps* on page 60. 2. If you use a CR230 Remote Assistant, check the sound meter on the status screen. 3. If you have monitor earphones, a hearing person can listen to the sound received by the processor. See *Audio accessories* on page 36 or the Accessories Supplement.

PROBLEM	RESOLUTION
Processor will not turn on/ buttons will not respond.	1. Try turning the processor on again. See *Turn on and off* on page 16. 2. Try unlocking the buttons. See *Lock and unlock buttons* on page 18. 3. Recharge/replace the battery. See *Replace the battery* on page 9 and *Charge rechargeable battery modules* on page 12. 4. Check the battery contacts are free of dirt and dust. See *Water, sand and dirt* on page 26. 5. If the problem continues, contact your clinician.
You do not hear sound or sound is intermittent.	1. If you use Advanced mode, turn up volume or sensitivity. See *Change volume or sensitivity* on page 67. 2. Try a different program. See *Change programs* on page 17. 3. Recharge/replace the battery. See *Replace the battery* on page 9 and *Charge rechargeable battery modules* on page 12. 4. Make sure the coil cable is fully inserted into the socket on the coil. 5. If the problem continues, contact your clinician.

PROBLEM	RESOLUTION
Sound is too quiet or muffled.	1. Try changing the microphone protectors. 2. If you use Advanced mode, turn up volume or sensitivity. See *Change volume or sensitivity* on page 67. 3. Try a different program. See *Change programs* on page 17. 4. If you use a CR230 Remote Assistant, see the user guide for further troubleshooting. 5. If the problem continues, contact your clinician.
Sound is too loud or uncomfortable.	1. If you use Advanced mode, turn down volume or sensitivity. See *Change volume or sensitivity* on page 67. 2. Try a different program. See *Change programs* on page 17.
You hear intermittent sound, a buzzing sound or distorted speech.	1. Check for sources of interference such as radio and TV transmission towers, shopping centres, airport security systems and mobile phones. 2. Try moving away from any electronic device that may be causing interference. 3. Auto telecoil may be activated. Try turning it off. See *Talk on the phone* on page 24. 4. If the problem continues, contact your clinician.

PROBLEM	RESOLUTION
You do not hear sound from an audio accessory.	1. Check that the accessory cable is fully inserted into the socket on the processing unit. 2. Check that the other end of the accessory cable is fully inserted into the audio source. 3. Check that the audio source is turned on and working properly. 4. Check the volume on the audio source. 5. If you use a CR230 Remote Assistant, use the sound meter to check the processor is receiving sound from the accessory. 6. If you use a CR230 Remote Assistant, check and adjust the accessory/microphone mixing ratio. 7. If available, try a different processor.
Your processor does not automatically turn on the telecoil.	1. If you use a CR210 Remote Control or CR230 Remote Assistant, check that Auto telecoil is turned on. 2. Wait until you hear speech. If Auto Telecoil is turned on, it should switch from standby to receiving when it detects speech. 3. Check with your clinician if Auto Telecoil is enabled on your processor. 4. Manually turn on the telecoil by pressing the upper button on your processor. See *Talk on the phone* on page 24.

PROBLEM	RESOLUTION
You have accidentally changed processor settings.	1. If you use a CR230 Remote Assistant, reset your processor's settings. 2. If you do not use a CR230 Remote Assistant, contact your clinician.
The processor switches off automatically.	1. Ask your clinician if "Auto power off" is enabled. If it is, then the processor will switch off when not connected to the implant for more than two minutes. 2. Change the battery/batteries. See *Replace the battery* on page 9 or *Change disposable batteries* on page 13.
The processor will not turn off.	1. Check you are pressing the correct button. See *Turn on and off* on page 16. 2. Check the processor is not locked. See *Lock and unlock buttons* on page 18. 3. Detach the battery module from the processing unit. See *Remove the battery* on page 9.
When using the LiteWear cable, the processor does not work.	1. Check the LiteWear cable is properly attached to both the battery module and the processor. 2. Try turning on your processor again. 3. Check the battery contacts and ensure they are free of dirt, dust or corrosion.

PROBLEM	RESOLUTION
The indicator light on the battery charger shows a fully charged battery is still charging.	This won't cause any damage to the battery as the charge cycle on a fully charged battery is very short.
The indicator light on the battery charger is flashing orange	1. Check that only rechargeable battery modules are connected to the battery charger. 2. Replace rechargeable battery module.
Disposable batteries are not lasting as long as usual.	1. Clean all connections and parts of the tamper resistant battery module. 2. Clean all connections on the processing unit. 3. Try replacing the coil with a new coil. 4. If the problem continues, contact your clinician.

Warnings

General

- No modification of this equipment is allowed.
- Removable parts of the system (e.g. Snugfit, Mic Lock) can be lost or may be a choking hazard.
- Sound processor covers and coil covers may not be suitable for children. Removable parts can be lost or may be a choking hazard.
- Keep chemicals from dry aid kits away from small children. Swallowing this material can cause serious internal injuries.

Processors and parts

- Remove the processor and coil immediately if there is any discomfort or pain (e.g. if device becomes hot, or sound is uncomfortably loud) and inform clinician. Carer must routinely check the device for signs of overheating and for signs of discomfort or pressure sores at the coil site.
- Remove the monitor earphones immediately if the sound level is uncomfortably loud and inform your clinician.
- If the coil magnet is too strong or is in contact with the skin, pressure sores may develop at the coil site. If this happens, or if you experience any discomfort in this area, contact your clinician.
- Do not push the volume too high for comfort in case a loud noise occurs nearby.
- Do not place the device or accessories inside any part of your body (e.g. nose, mouth).

- Do not use your processor in a way that will restrict your airways (e.g. when using LiteWear or long coil cable).
- Do not let your processor or parts entangle with any jewellery (e.g. earhook and earrings) or machinery.
- Do not apply continued pressure to the coil when in contact with the skin (e.g. sleeping while lying on coil, or using tight fitting headwear).
- Do not attach or wear a body-worn battery configuration beneath layers of clothing in direct contact with the skin (e.g. in pocket or under a child's vest).
- Make sure all cables used by a child are securely attached to their clothing.
- Do not place the processor or parts in any household devices (e.g. microwave oven, dryer).
- Do not modify your processor. Warranty will be void if modified.
- Do not use a dry aid kit that has an Ultra Violet C (UVC) lamp (e.g. do not use the Freedom Dry and Store).
- Store spare coil magnets safely and away from cards that may have a magnetic strip (e.g. credit cards, bus tickets, etc).
- Advanced mode users – if you find you need to adjust the volume often, or if adjusting volume ever causes discomfort, consult your clinician.
- The microphone protector removal tool is a sharp object. It is not recommended for use by children.
- The tamper resistant earhook fitting tool and fitting pin are sharp objects. They are not recommended for use by children.

Batteries

- Dispose of used batteries promptly and carefully, in accordance with local regulations. Keep away from children.
- Do not recharge disposable batteries.
- Do not disassemble, deform, immerse in water or dispose of batteries in fire.
- Replace the whole set of two disposable batteries with high power Cochlear supplied or recommended zinc air batteries only. We recommend power one IMPLANT plus p675 zinc air batteries. We do not recommend using silver oxide or alkaline batteries.
- Do not mix disposable batteries that differ by manufacturer, brand, type, age or previous usage.
- Insert batteries correctly.
- Only use rechargeable batteries and battery chargers supplied or recommended by Cochlear. Use of other batteries or battery chargers may result in harm or injury.
- Charge rechargeable batteries before use.
- Do not allow children to replace batteries without adult supervision.
- Do not touch the battery charger contacts or allow children to use the battery charger without adult supervision.
- Do not short-circuit batteries (e.g. do not let terminals of batteries contact each other, do not place batteries loose in pockets, etc.).
- Store unused batteries in original packaging, in a clean and dry place. When processor is not in use, remove the disposable or rechargeable batteries and store separately in a clean and dry place. Wipe batteries with a clean dry cloth if they become dirty.

- Keep all parts of the Cochlear Nucleus CP900 Series Tamper Resistant Battery Module and button cell batteries out of reach of children. Removable parts can be lost or may be a choking hazard.
- Do not expose batteries to heat (e.g. never leave batteries in sunlight, behind a window or in a car).
- Do not use damaged or deformed batteries. If skin or eyes come into contact with battery fluid or liquid, wash out with water and seek medical attention immediately.
- Never put batteries in mouth. If swallowed, contact your physician or local poison information service.

Other information

Physical configuration

The processing unit comprises:

- Two omni-directional microphones for receiving sound.
- An internal telecoil for receiving magnetic fields radiated by phones, neckloops and roomloops.
- Custom analogue and digital integrated circuits with digital signal processing (DSP) and bi-directional wireless communication capabilities.
- A tri-colour visual indication of processor function or problem.
- Two buttons allow user control of key features.
- CP910 only – custom 4-pin accessory connector for connection
- Custom 4-pin coil connector for connection of the coil cable.
- A range of earhooks.

The batteries provide power to the processor. The coil acts as a transformer coupling that transfers energy and data to the implant.

Wireless communication link

The remote control/remote assistant wireless communication link operates in the 2.4 GHz ISM band using GFSK (Gaussian frequency shift keying) on 5 channels. The link uses a proprietary bi-directional communication protocol and operates over a distance of up to 2 metres from the processor. When interference is present, the wireless communication link switches between the 5 channels to find a channel where the interference least affects the operation of the link. The remotes indicate via their displays when the processor is not within operating distance, and when the link has been interrupted due to interference (see the relevant remote user guide for more information).

Materials

- Processing unit: copolyester
- Battery modules (all types) are made of copolyester.
- Coil is made of polypropylene (PP), thermoplastic elastomer (TPE).
- Coil magnet casing is made of acrylonitrile butadiene styrene (ABS).
- Coil cable sheath is made of polyvinyl chloride (PVC).
- Coil cable plugs are made of PP & TPE.
- LiteWear cable is made of polyester, TPE & PVC (same construction as the coil cable) sheath is PVC; plugs/strain relief are PP and TPE.
- LiteWear connection shoes are made of copolyester.
- LiteWear retention case is made of polyamide.
- LiteWear Fixing Aids are made of polycarbonate.
- Processor covers are made of polystyrene and polycarbonate.
- Coil covers are made of polycarbonate.

Battery life, charge cycles and lifespan

- **Battery life** means the time a device will run before the disposable batteries must be replaced, or the rechargeable batteries recharged.
- A **battery charge cycle** is a full charge and discharge of the rechargeable battery.
- **Battery lifespan** means the total number of charge cycles a rechargeable battery will last before the battery life degrades to 80% of its original fully-charged capacity.

Product component dimensions *(Typical values.)*

COMPONENT	LENGTH	WIDTH	DEPTH	DIAMETER
CP910 processing unit with medium earhook and standard rechargeable battery module	51.3 mm	9.0 mm	47.7 mm	N/A
CP920 processing unit with medium earhook and compact rechargeable battery module	39.1 mm	9.0 mm	47.7 mm	N/A
Standard tamper resistant battery module	28.0 mm	9.0 mm	19.0 mm	N/A
Compact rechargeable battery module	19.0 mm	9.0 mm	19.0 mm	N/A
Standard rechargeable battery module	28.0 mm	9.0 mm	19.0 mm	N/A
Coil	N/A	N/A	8.0 mm	32.0 mm

Weight *(Typical values. All weights are measured with a medium earhook.)*

COMPONENT	WEIGHT
CP910 processing unit (no battery module)	5.7g
CP920 processing unit (no battery module)	5.0g
CP910 processing unit with compact rechargeable battery module	10.5g
CP910 processing unit with standard rechargeable battery module	13.0g
CP910 processing unit with standard tamper resistant battery module (including two zinc air batteries)	12.8g
CP920 processing unit with compact rechargeable battery module	9.8g
CP920 processing unit with standard rechargeable battery module	12.4g
CP920 processing unit with standard tamper resistant battery module (including two zinc air batteries)	12.1g
Coil (without coil magnet)	5.0g

Operating characteristics

Processing unit

CHARACTERISTIC	VALUE/RANGE
Sound input frequency range	100 Hz to 8kHz
Wireless technology	Proprietary low power bi-directional wireless link
RF frequency	2.4 GHz
Operating voltage	2.00 V to 4.25 V
Power consumption	20 mW to 100 mW
Charge cycles	≥ 80% capacity after 365 charge / discharge cycles at room temperature
Button functions	Turn processor on and off, turn telecoil/audio accessory on and off, change program, lock/unlock buttons, change sensitivity or volume level.
Wireless transmission range	Up to 2 m

Battery module

TYPE	CAPACITY/VOLTAGE RANGE
Standard tamper resistant battery module	Two PR44 (zinc air) button cell batteries. 1.45 V (nominal) each. Cochlear recommends power one IMPLANT plus p675 zinc air batteries.
Compact rechargeable battery module	120 mAh/ 3.0 V to 4.2 V
Standard rechargeable battery module	205 mAh/ 3.0 V to 4.2 V

Coil

CHARACTERISTIC	VALUE/RANGE
Operating voltage	2.0 V to 2.6 V
Operating frequency	5 MHz

Environmental conditions

CONDITION	MINIMUM	MAXIMUM
Storage & transport temperature	-40°C (-40°F)	+50°C (122°F)
Storage & transport relative humidity	0% RH	90% RH
Storage & transport pressure	250 hPa	1030 hPa
Operating temperature	+5°C (41°F)	+40°C (104°F)
Operating relative humidity	0% RH	90% RH
Operating pressure	700 hPa	1030 hPa

Environmental protection

Your sound processor contains electronic components subject to the Directive 2002/96/EC on waste electrical and electronic equipment. Help protect the environment by not disposing of your sound processor or batteries with your unsorted household waste. Please recycle your sound processor according to your local regulations.

Standard tamper resistant battery module

Check the battery manufacturer's recommended operating conditions for disposable batteries used in your processor.

Certification and applied standards

The CP900 series sound processors fulfil the essential requirements listed in Annex I of the EC directive 90/385/EEC on Active Implantable Medical Devices and with requirements of the EC directive 1999/5/EC on Radio and Terminal Telecommunication Equipment as per conformity assessment procedure Annex III.

CE 0197

The year in which authorisation to affix the CE mark was granted was 2013.

Equipment classification

Your sound processor is internally powered equipment Type B applied part as described in the international standard IEC 60601-1:2005, Medical Electrical Equipment – Part 1: General Requirements for Basic Safety and Essential Performance.

FCC (Federal Communications Commission) and Canadian IC compliance

This device complies with part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications made to this equipment not expressly approved by Cochlear Limited may void the FCC authorisation to operate this equipment.

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.

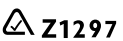
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment 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.
- Consult the dealer or an experienced radio/TV technician for help.

FCC ID: WTOP900
IC ID: 8039A-P900

Labelling symbols

The following symbols may appear on your processor or remote components and/or packaging:

	Consult instructions for use
	Manufacturer
	Authorised representative in the European Community
	Catalogue number
	Serial number
	Batch code
	Date of manufacture
	Temperature limit
	Humidity limitation
	CE registration mark with notified body number. Indicates compliance with the requirements of the Active Implantable Medical Device Directive 90/385/EEC
	Certification Australia
	Certification New Zealand

Certification Japan

Certification Korea

Certification Taiwan

Do not re-use

Rx Only

By prescription

Recyclable material

Recycle under green dot scheme

Coil guide. Used to position the coil against the remote control when pairing.

Dispose of electrical components in accordance with your local regulations

Dispose of lithium-ion batteries in accordance with your local regulations

Type B applied part

IP44

Ingress Protection Rating

- Protected against access of solid foreign objects greater than or equal to 1.0mm diameter.
- Protected against failure from splashing water.

IP57

Ingress Protection Rating

- Protected against access of solid foreign objects greater than or equal to 1.0mm diameter.
- Protected against failure from dust penetration.
- Protected against failure from temporary immersion in water.

Legal statement

The statements made in this guide are believed to be true and correct as of the date of publication. However, specifications are subject to change without notice.

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Notes

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Hear now. And always

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