APX37x

DECT, Bluetooth, and Electronic Headsets

Manual

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Table of Contents

Overview 1
Model Matrix 1
Contents in Box 1
Accessories (not included) 1
Features 2
- Common Features, All Models 2
- Common Features, Communication Headsets 3
- Wireless *Bluetooth*® Technology 3
- Wireless DECT Communications 4

Configuring the Headset 5
- Headband Removal 5
- Headband Installation 5
- Behind Head Headstrap Installation 6
- Replacing the Ruggedizer 6
- Connecting a Two-way Radio 6

Fitting 7
- Overhead Fitment 7
- Behind Head Fitment 7
- Fitment Warnings 8

Charging 9
Battery Replacement 10
LED Indications 10
Settings & Operation 11
- Buttons 11
- Main Menu 12
- Advanced Menu 13
- Wireless *Bluetooth*® 14
- Wireless DECT 14
- Quick Launch 15

PC Programming 15
- Locating the USB Port 15
- Installation of the Sonetics Configurator Windows Program 15

Care and Maintenance 16
- Mic Muff Replacement 16
- Ear Seal Replacement 16

Troubleshooting 17
- General 17
- Wired Auxiliary 17
- Wireless Bluetooth 17
- Wireless DECT 17

Glossary 18
Specifications 19
- Headset 19
- Regulatory 19
- Bluetooth® Specifications 20
- DECT Specifications 20

Important Safety Information 21
- General Warning for Sensitive Electronic Devices 21
- General Communication Privacy Notice 21
- Industry Canada (I.C.) Notice 21
- FCC Part 15 Information 22
- FCC/IC RF Exposure Warning 22
- Rechargeable Battery Information 22
- Important NRR Information 23

Sonetics Standard Limited Warranty 24

Overview

The Sonetics APX37x electronic headset protects you from dangerous noise levels while enhancing all other audio to a comfortable listening level. Protect your hearing without sacrificing safety and situational awareness. Hear alarm bells, music, or even have a face-to-face conversation knowing you're still protected. Integrate with a two-way radio, cell phone, and MP3 player simultaneously via wired and optional wireless Bluetooth inputs. DECT7-enabled models extend team communication (just like a conference call) up to 1,600 feet (line of sight). The rugged, submersible and comfortable design ensures this headset is ready for tough work environments.

Model Matrix

	APX372	APX373	APX375	APX377	APX379
Microphone	✗	✓	✓	✓	✓
Listen Thru	✓	✓	✓	✓	✓
Dosimeter	✓	✓	✓	✓	✓
Wired AUX	✓	✓	✓	✓	✓
Wireless Bluetooth	✗	✗	✓	✗	✓
Wireless DECT7	✗	✗	✗	✓	✓

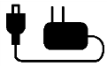
✓ = Included

✗ = Not Available

Contents in Box

Headset
- 1 ea x Apex Headset

Manual and Reference
- 1 ea x Quick Reference Guide
- 1 ea x Manual (online at: www.soneticscorp.com)



Charging
- 1 ea x AC Wall Adaptor
- 1 ea x Heavy Duty DC Charging Cable
- 1 ea x Fuse Assembly

Accessories
- 1 pair x High Visibility Yellow Ruggedizers (Installed)
- 1 pair x ComLeather Earseals

Tools
- 1 ea x Headband/Battery Removal Tool (Sonetics Screw Driver)

Accessories (not included)

Hard Hat Adaptors

Auxiliary PR Radio Interface - Connect to any portable two-way-radio and many other devices

Color Ruggedizers in a variety of colors to meet you team's needs

Earseals to enhance comfort

Worldwide Power Adaptor

Features

Common Features, All Models

Adjustable Volume Control

The headset has a programmable and real-time adjustable volume to the user. The headset will remember the last setting at each power up for convenience.

Automatic Loud Noise Suppression

The headset will limit high impulse events such as gun shots from being transmitted to the user when using the Stereo Listen Thru.

Convertible Headband

The headset is user configurable for overhead, behind-head, or hard hat (with hard hat accessory). This gives the user the ability to change the headset purpose over time without needing to invest in a new headset.

Color Ruggedizers

The ruggedizers offer additional protection. They are available in many colors (sold separately) to give the user the ability to define teams, roles, or enhance safety.

Extreme Environmental Design

The headset has an IP-67 dust and water egress rating. This ensures that even when dropped into water, the headset may be removed and useable. We have also verified operation to -40F/C for extreme cold weather environments.

Flexible Charging

AC adaptor and DC automotive charging cable are included to integrate the wireless headset into the user's environment.

Hearing Protection

The headset conforms to many of the required hearing protection standards protecting the user from harmful noise.

In Headset Charging

The powered headset has a complete charging circuitry built in and ready to be charged from multiple sources. These sources include the supplied AC wall adaptor or DC charging from a variety of sources including most cars, trucks, and aircraft. Refer to specification for charging voltages and power requirements.

Light Weight

Thru the use of the latest light weight technologies, Sonetics is able to deliver a wireless headset that is lighter than many wired communication headsets.

Listen Thru Situational Awareness

The headset has two listen thru microphones to give the user stereo situational awareness. The microphones are also place on the forward edge of the headset to give the user the perception of sounds in the front verses sounds from the rear. The listen thru has a programmable volume level and will limit all sounds to 82dB to the user.

Long Battery Life

With over 24 hours of continuous use, the headset works whenever the user needs it.

Multilingual Voice Prompts

The headset is capable of English and Spanish voice prompts. This gives the user the ability to navigate the headset in their preferred language.

Multimode Auto Shutdown

The headset is designed with multimode auto shutdown to provide convenience for the user and extend the battery life.

Bluetooth and DECT Wireless Shutdown
After establishing a wireless connection, if there is a loss of wireless connections for 5 minutes, the headset will power down.

Non-Activity Shutdown
Shutdown due to non-audio activity after 1 hour.

All of the shutdowns have a verbal announcement and may be cancelled by the user by pressing any button.

Noise Dosimeter

The headset measures the sound level inside the ear cup cavity to up to a 24 hour period to ensure noise expose limits are being followed. The headset will remember the TWA (Time Weighted Average) even when turned off (the memory will reset after 6 hours of being off) and will average the last 24 hours continuously. Programmable audible alerts send a voice prompt to the user notifying them of the last 24 hours of exposure. The system automatically adjusts the various inputs (listen thru, AUX, Bluetooth, DECT, and side tone) to ensure compliance to hearing protection standards.

Two Stage Low Battery Alert

The powered headset has a two stage low battery alert system to notify the user when approaching a depleted battery. This allows the user to have adequate notice before loss of communications.

USB Programmable

The headset has a built in USB port for configuring with your Windows PC. Many of the features may be customized and saved from the program. Refer to the Sonetics Headset Program for details.

User Replaceable Battery

The powered headset uses an industry standard replaceable battery. This allows the user to replace the battery at end of life and have spares in the field for extended operation times.

Voice Prompts

The voice prompt menu guided system allows the user to make all adjustments without removing the headset to look for lights, text, or knob positions. The Voice Prompts automatically adjust volume to ensure intelligibility in changing environments.

Wired Line-in

The wired line-in is used to interface with cell phones and hand held radios. This gives the user another source for flexibility in their communication needs. The wired connection features a mono input and output with PTT output. See your Sonetics dealer for an accessory to match your equipment.

Common Features, Communication Headsets

Not available on the APX372 headset.

Auto-Leveling Microphone

The headset automatically detects the voice of the user against the noise in the background. This allows the headset to have an automatic VOX (noise gate or squelch) that needs no adjustment when transitioning from areas of differing noise levels.

Noise Cancelling Microphone

The microphone is a noise cancelling type designed to remove the background noise right at the mic element. This allows the receiver of the conversation to hear the person talking and not the background noise.

Radio PTT

The headset interfaces with any two-way portable radio using the wired AUX input or wireless DECT connection. When there is a DECT connection, the PTT signal is passed to the wireless DECT. Otherwise, the PTT signal is passed to the wired AUX input.

Wireless *Bluetooth*® Technology

Available on the APX379 & APX375 headsets.

The headsets with wireless Bluetooth operation have the ability to connect with other wireless Bluetooth enabled devices. This allows the user to add an additional source to listen to or communicate with. Devices such as cell phones, mp3 players, mobile radios, computers, etc. expand the communications potential.

A2DP Audio Streaming

The headset features integrated A2DP streaming audio functionality, so you can listen to music or podcasts, and hear turn-by-turn direction information from a GPS application on your phone. You can also use this feature to stream audio from a Bluetooth-enabled computer to the headset.

Wireless DECT Communications

Available on the APX379 & APX377 headsets

The headset features a wireless DECT communication channel enabling full duplex communication, like a phone call, to others on the same channel. The Sonetics wireless DECT headsets will connect with standalone Sonetics wireless base stations or a Sonetics IP-DECT wireless system. This DECT communication network gives the user up to 1600ft line-of-sight to the wireless base. The standard further ensures interference free and digitally encrypted communications amongst all parties.

Backwards Compatibility

The wireless headset is backwards compatible with the Sonetics first generation wireless bases with minimal loss in functionality.

Dual Dome Antenna Design

Each dome has a separate DECT antenna using diversity switching to lock onto the best signal. This allows the user to not worry about head position relative to the wireless base and delivers the best possible connection at all times.

Listen Only Mode

The headset may be placed into a listen only mode of operation reducing the power consumption considerably. This also allows many more headsets to be connected to a base station simultaneously. Refer to the wireless base manual for details.

Radio PTT or Intercom Only Selection

The headset may be configured to transmit a radio transmit signal to radios connected to the DECT Wireless Base Station and Intercom of the Sonetics DECT wireless communication system. This allows the user to transmit over multiple radios depending on the base stations and intercom configuration. Additionally, the headset may be selected to not radio transmit. This is excellent for teams that need some users who will use the radio transmit and others who do not.

Multiple Radio Control

Using the Sonetics Digital Intercom with multi-radio option, the base station may be programmed to allow the headset to selectively transmit over up to four different radios and four auxiliary inputs to the Sonetics Digital Intercom.

Multi-Channel System

Depending on the wireless DECT base station or IP-DECT system, the user may have access to multiple channels. This allows large teams to have separate channels for different activities while enabling the users to change channel and become one communication team. Refer to the Wireless base station manual for configuration.

Out of Range Warning

The headset will notify the user via voice prompt when the DECT connection is low and it appears to go out of range from the wireless base station.

Proximity Pairing

To enhance security, the base station will only pair to wireless DECT units in close proximity. This adds another layer of protection for users.

Signal Strength Reporting

The headset may be placed into a signal strength mode allowing the user to map out the signal strength to the wireless base the headset is connected to.

Wide Band Audio

The wireless DECT communications are transmitted in a high definition wide band audio format. This allows greater intelligibility of the user and integration with voice activated control systems. This feature is defeatable to allow the user to be in a narrow band audio communication.

Configuring the Headset

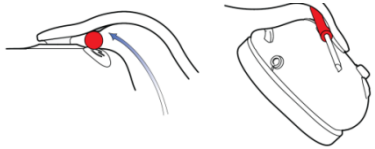
The Sonetics power headset may be configured for use as an overhead, under-helmet, or hart hat (sold separately) headset. The different headbands are attached through a secure snap joint on the side of the ear domes. This snap joint secures the headset to the ear dome, maintains the ear dome orientation, and provides a full motion of freedom to allow the dome to seat comfortable against the user's head.

Headband Removal

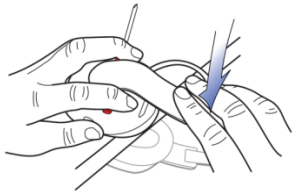
Tools Required: Headband Removal Tool

1. Use the handle of the Headband Removal Tool

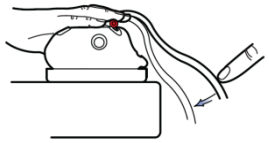
2. Place the handle between the headband and the dome. Note the notch in the headband to secure the headband removal tool handle.



3. Use one hand to hold the dome on a flat surface



4. Gently push with the headband with the other hand.



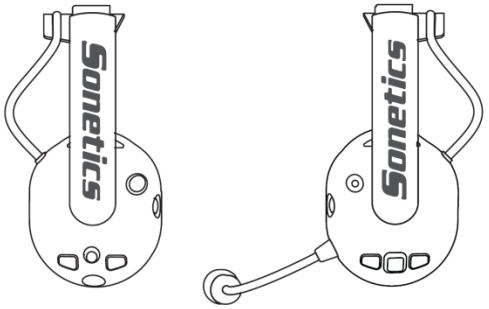
5. Route the headband cable into the under headband as shown.

Headband Installation

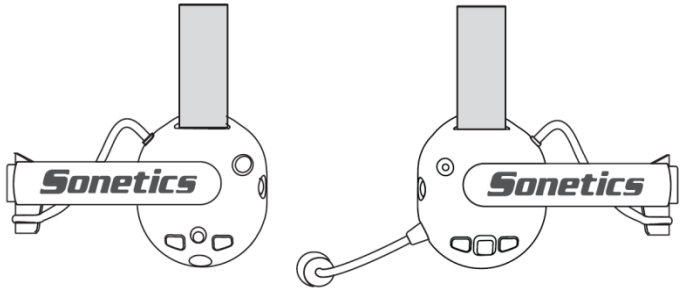
Tools Required: None

1. Align the headband with the domes as shown.

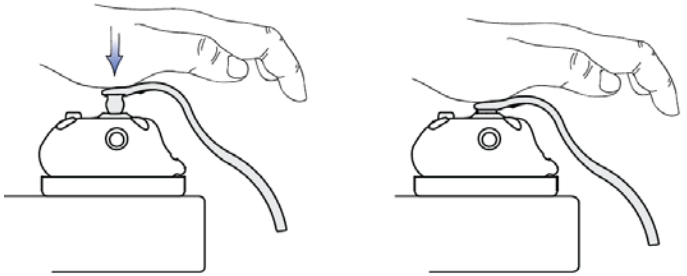
Over Head



Behind Head



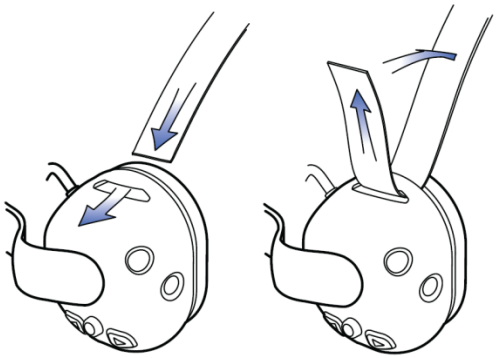
2. Place the Dome onto a flat surface.
3. Press Down on the headband till the ball joint snaps into place.



Behind Head Headstrap Installation

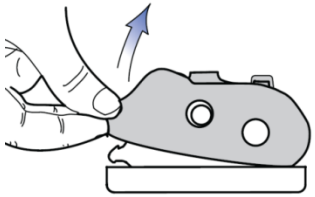
Tools Required: None

1. Insert the strap at dome opening.
2. Affix the strap using the hook and loop.

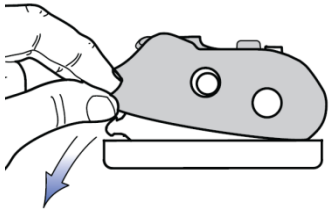


Replacing the Ruggedizer

1. Remove the headband
2. Peel back the ruggedizer



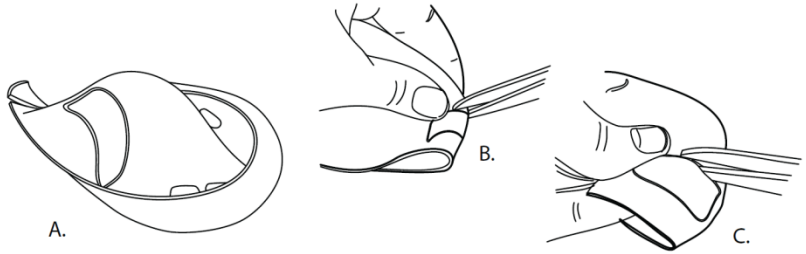
3. Replace the ruggedizer. Note the left and right.



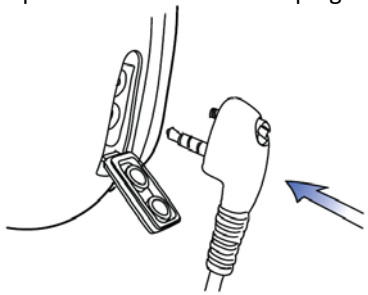
Connecting a Two-way Radio

Tools Required: Scissors

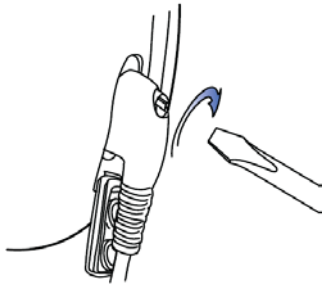
1. Remove the left dome ruggedizer. (with the microphone boom attached)
2. Cut the along the groove on the underside of the ruggedizer.



3. Replace the ruggedizer.
4. Open the Radio Cover and plug in the Sonetics PR Radio Adaptor.



5. Screw the adaptor into place.

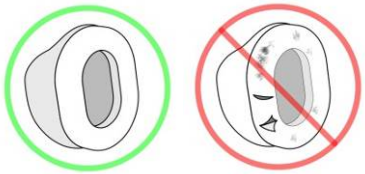
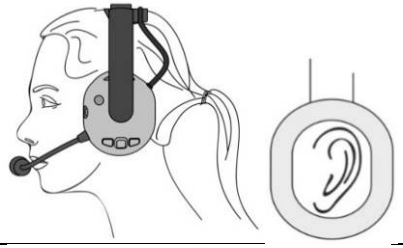


6. Connect the Sonetics PR Radio Adaptor to the Radio.

Fitting

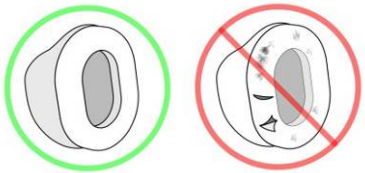
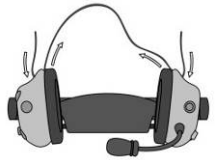
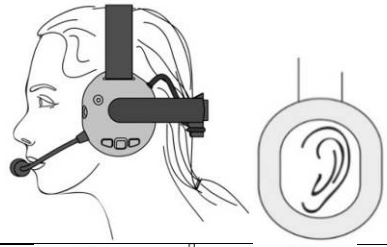
Proper fitment is required to achieve the rated hearing protection levels.

Overhead Fitment

1. Inspect		Ensure no damage to the earseals or the headset
2. Expand		Open headband to full width
3. Place		Place cups over ears, without sitting on any part of the ear Position microphone no more than 1/8” from lips
4. Adjust		Adjust headband to sit gently on top of your head
5. Seal		Test seal by pressing against your head and listening for a change in sound level

BB

Behind Head Fitment

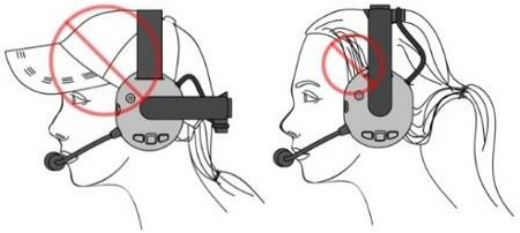
1. Inspect		Ensure no damage to the earseals or the headset
2. Expand		Open headband to full width
3. Place		Place cups over ears, without sitting on any part of the ear Position microphone no more than 1/8” from lips
4. Adjust		Adjust headband to sit gently on top of your head
5. Seal		Test seal by pressing against your head and listening for a change in sound level

Fitment Warnings

Improper Placement and Adjustment

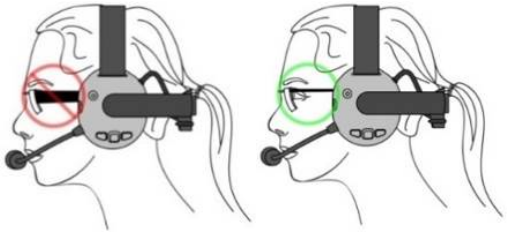
Obstructions

Ensure headwear and hair does not cause gap in the earseal.



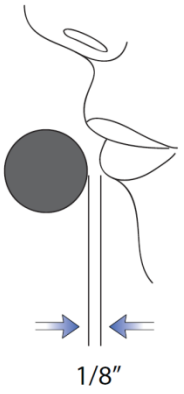
Glasses

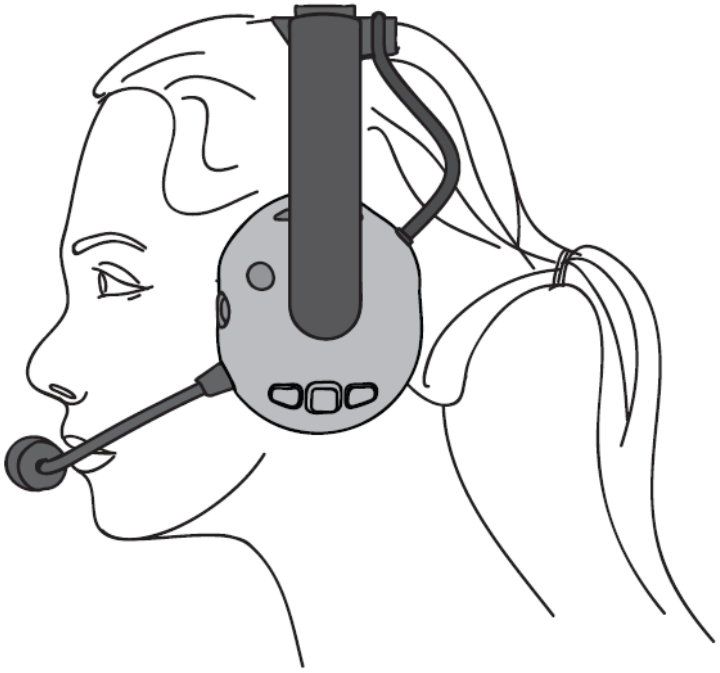
Ensure Glasses do not cause a gap in the earseal.



Microphone Placement

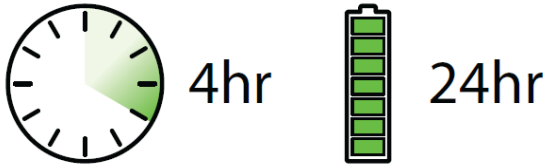
To optimize the speech, the microphone is noise cancelling type. This type of microphone is designed to enhance sounds from very close, while reducing sounds from afar. Ensure proper placement for best results.





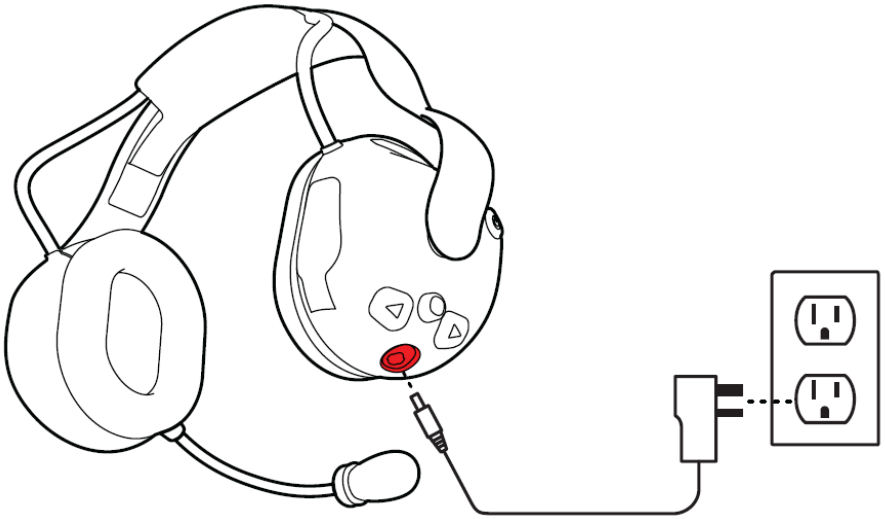
Charging

The Sonetics powered headsets use a barrel charging jack with the connections below.



Wall Adapter Charging

Only charge the headset using the supplied 12VDC regulated wall adapter.

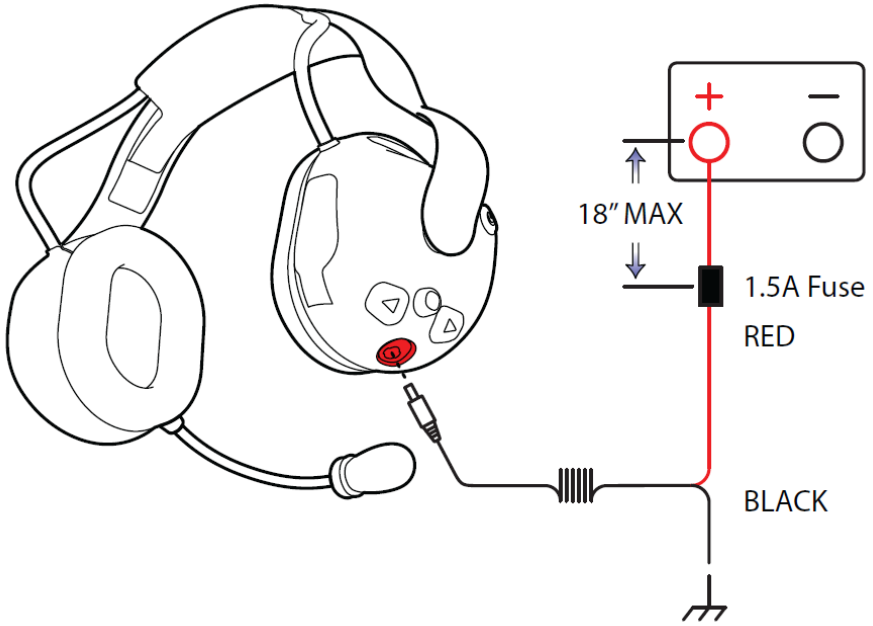


⚠ ***WARNING: Using unregulated wall adapters will damage the headset and void the warranty.***

Vehicle Charging

Connect the **RED** wire to +12VDC and the **BLACK** wire to battery chassis ground.

Install the fuse no further than 18" from the battery.



⚠ ***WARNING: Only replace fuse with the same type, 1.5A AGU.***

⚠ ***WARNING: Voltages exceeding the headset charging specification will damage the headset. Verify the headset voltage specification to the vehicle battery and charging system specifications.***

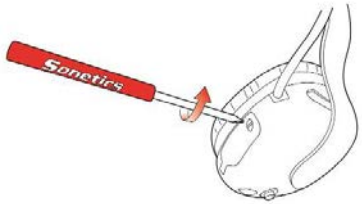
Battery Replacement

The Sonetics powered headsets use a 18650 Lithium Ion battery. While common, the batteries from Sonetics are the only batteries that have been tested and verified to operate correctly with the headset. Use only the manufacturer approved batteries for best performance of the headset.

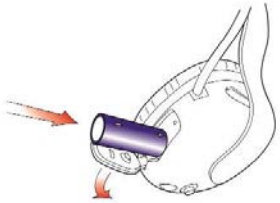
⚠ ***WARNING: Use only Sonetics approved batteries.***

Tools Required: Headband/Battery Removal Tool (Flat Head Screwdriver)

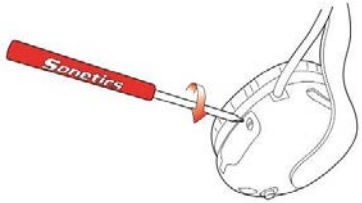
1. On the right dome, pull back the ruggedizer if the headset has one installed.
2. Open the battery door on the right dome using the screwdriver.



3. Remove the battery. Recycle or Discard per local laws. Refer to Rechargeable Battery Information.
4. Insert the replacement battery with the positive end first.



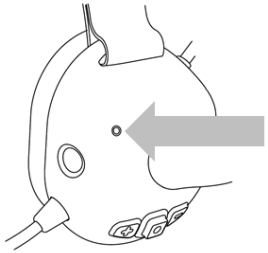
5. Close the battery door and tighten the screw with the screwdriver.



6. Replace the ruggedizer if the headset has one installed.

LED Indications

The Sonetics powered headset uses a multicolor LED indicator to give additional information on the exterior of the headset. The table below describes the behavior while charging or in use.

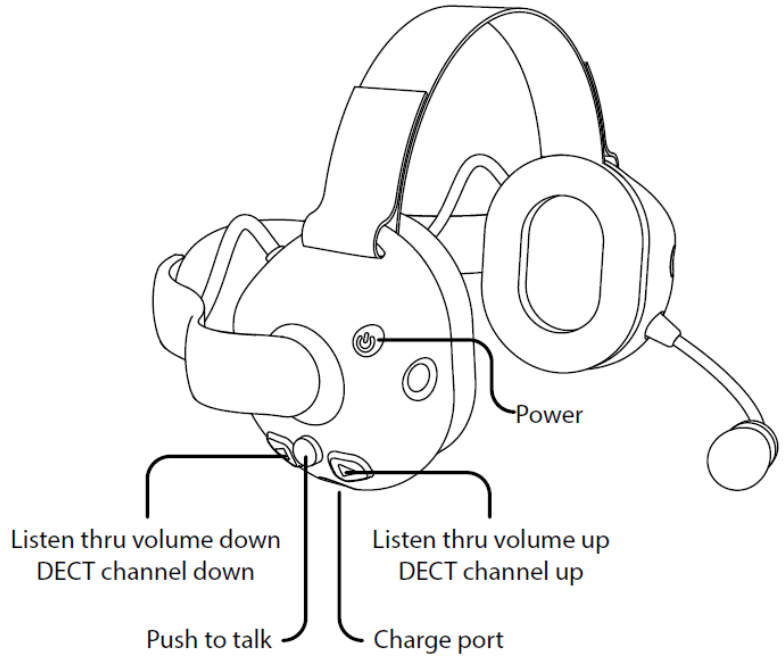


Charging	Non-Charging	Function
	Red Flash ● ● ● ●	Headset On
	Blue Flash ● ● ● ●	*Bluetooth*® Connection Established and in progress
	Red/Green ● ● ● ●	Headset in DECT pairing mode
	Green Flash ● ● ● ●	DECT Connection Established and in progress
	Blue/Green ● ● ● ● ● ● ● ●	Both Bluetooth and DECT connections Established and in progress
	Flash ● ● ● ●	Battery Level ● ● ● ● = Battery >75% ● ● ●= Battery 50-75% ● ● = Battery 25-50% ● = Battery <25%
Red Solid		Charging
Green Solid		Fully Charged

Settings & Operation

Buttons

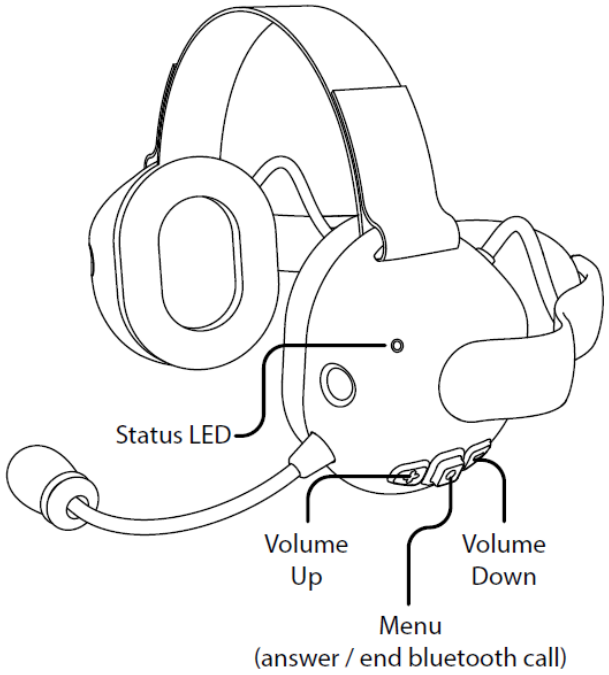
Right Side



Power on/off ⏻

Listen Thru -/Channel -1 ◀ | PTT ○ | Listen Thru +/Channel +1 ▶

Left Side



Volume +/Selection +1 ✚ | Menu □ | Volume -/Selection -1 ▬

Turn On

Press and release the power ⏻ button. You will hear the welcome message and the LED on the right hand side of the unit will begin to flash periodically.

Turn Off

Press and release the power ⏻ button. You will hear the headset powering down message and the LED will turn off.

Adjusting the Main Volume

Press the plus ✚ or minus ▬ sign button on the left-hand side of the headset.

Adjusting the Listen Thru Volume / DECT Channel Select

Press the forward ▶ or back ◀ sign button on the right-hand side of the headset.

Pressing simultaneously the forward ▶ or back ◀ sign buttons will toggle between Listen Thru and DECT Channel if the headset has a DECT connection.

Main Menu

The headset settings are adjusted in the headset menu system. When in the menu system, all other functions except PTT and Power are locked out.

To Enter the Main Menu

- Press the menu ☐ button for 3 seconds.
- Sequentially pressing the menu ☐ button cycles thru the menu items. Using the plus ✚ and minus ▬ makes adjustments and enters the next level of menu.

To Exit the Main Menu

- Press the menu ☐ button or wait 30 seconds to automatically exit. Pressing any of the right side buttons (forward ▶, PTT ○, back ◀) will fully exit the menu as well.

Listen Thru Volume

Factory Setting	Options:
Maximum	• Maximum (Amplified Listen Thru) • Level 4: No Gain Listen Thru • Level 3 • Level 2 • Level 1 • Off

To Adjust

1. Enter the Main Menu
2. Repeatedly press the menu ☐ button till you hear "*Listen Thru*".
3. Then press either the plus ✚ or minus ▬ to adjust the listen thru volume up or down.
4. To exit either press the menu ☐ button or wait 30 seconds.

VOX Level

The VOX Level may be configured into multiple modes of operation to tailor to the user's application.

- To turn on the microphone always use "ON". This disables the VOX noise gate completely. A whisper will be heard by all.
- The next 3 are for setting automatic noise gate functionality with lower to higher sensitivities.
- The last 4 are separate settings for fixed sound pressure level environments. This is for use where you know the sound levels are consistent.

When the user presses the Radio PTT, any noise gate will be removed to allow the user to be heard without effort to overcome the noise gate settings.

Factory Setting	Options:
Auto 2	• Microphone On (No Noise Gate) • Auto 1 • Auto 2 • Auto 3 • Fixed 90dB • Fixed 100dB • Fixed 110dB

To Adjust

1. Repeatedly press the menu ☐ button till you hear "*VOX*".
2. Then press either the plus ✚ or minus ▬ to adjust the VOX level. This adjusts how much force you will have to use to open the microphone.
   a. At minimum, the VOX will be off and you will hear all sounds through the talk microphone.
   b. At maximum, the headset will require PTT ○ to be pressed to talk.
3. To exit either press the menu ☐ button or wait 30 seconds.

Advanced Menu

The Advanced Menu is for the set-up and configuration of the headset for the application it is used in. Caution must be made in making adjustments in the advanced menu as these changes the headsets operation characteristics. When in the menu system, all other functions except PTT and Power are locked out.

To Enter the Advanced Menu

- Simultaneously press then release both the menu ☐ and PTT ○buttons till you hear "*Advanced Menu*".
- Sequentially pressing the menu ☐ button cycles thru the advanced menu items. Using the plus ✚ and minus ▬ makes adjustments.

To Exit the Advanced Menu

- Press the menu ☐ button or wait 30 seconds to automatically exit. Pressing any of the right side buttons (forward ▶, PTT ○, back ◀) will fully exit the menu as well.

Radio & Intercom Function

This menu sets the function of the PTT and Intercom.

Radio Transmit: For Radio PTT, when the headset has a DECT connection, the PTT will activate only the DECT Radio wireless connection. When the Headset does not have a DECT connection, the PTT will activate the AUX Radio wired connection.

Intercom: This configures how the PTT and Noise Gate interact with each other while the person is talking amongst the local wireless team. If you can hear yourself through the side tone, others can hear you.

Factory Setting	Options:
"*Radio VOX*": Radio Transmit on PTT ○, Hands Free Intercom	• "*Radio VOX*": Radio Transmit on PTT ○, Hands Free Intercom • "*Radio PTT*": Radio Transmit on PTT ○, Push to Talk Intercom • "*Intercom VOX*": Hands Free Intercom only • "*Intercom PTT*": ○ Push to Talk Intercom only • "*Intercom Toggle*": ○Toggle to Talk Intercom only

To Adjust

1. Enter the Advanced Menu.
2. Repeatedly press the menu ☐ button till you hear option.
3. Press either the plus ✚ or minus ▬ to cycle thru the options.
4. Exit the Advanced Menu.

Dosimeter Settings

This sets the behavior of the headset dosimeter.

When on

The headset will measure the A-Weighted sound pressure level (SPL) in each ear cup. The SPL is calculated and retained over time to create a table of the sound exposure over a 24 hour period. When the headset is turned off it will not record values. When the SPL exceeds 85dB over an 8 hour period or exceeds the sound dose allowed by OSHA, the headset will alert the user.

During the time of use, the headset will dynamically control the various input volumes to ensure compliance with OSHA sound dosage standards.

Factory Setting	Options:
On	• On – OSHA (85dB dose, 8hrs, 115dB max) • Off – Dosimeter disabled (Reset)

To Adjust

1. Enter the Advanced Menu.
2. Repeatedly press the menu ☐ button till you hear "*Dosimeter <status>*".
3. Press either the plus ✚ or minus ▬ to cycle thru the options.
4. Exit the Advanced Menu

To Reset

1. Enter the Advanced Menu.
2. Repeatedly press the menu ☐ button till you hear "*Dosimeter <status>*".
3. Cycle the Dosimeter on and off using the ✚ or minus ▬ to clear the memory.
4. Exit the Advanced Menu

Wireless *Bluetooth®*

To create a new Bluetooth pairing

1. Turn off the headset.
2. Turn on the headset.
3. The headset will enter into Bluetooth pairing mode for the first 10 minutes of operation.
4. Enter connectivity options on your Bluetooth device and under Bluetooth search for new devices. Once the search is complete select Sonetics-HS## and if prompted for a password enter four zeros (0000).

To answer a call

Quickly press and release the menu ☐ button.

To hang up a call

Quickly press and release the menu ☐ button.

Wireless DECT

The headsets with the DECT communication feature have the ability to use the Sonetics DECT and IP-DECT wireless bases for communication. The protected frequency in each region ensures interface free operation. All DECT communication is full duplex (like a phone call).

Pairing the DECT Headset

The DECT wireless headset uses a semi-permanent link with a DECT base station or IP-DECT system to remember where to connect each time a connection is established. No additional steps are required after a headset has been paired to a base. Each time thereafter the headset will remember the base and automatically reconnect.

To Create a New DECT Pairing

1. Turn off the headset.
2. Enter the Base Station into Pairing Mode.
3. Hold down the PTT ○ button and Turn on the headset.
4. Keep holding the PTT ○ button till the LED begins to flash Red/Green ●●●●.
5. Release the PTT ○ button.
6. If Successful, the LED will begin to flash Green ●●●●.
7. If not, repeat #1.

To erase a DECT pairing, follow the pairing sequence above without entering the Base Station into Pairing mode.

Quick Launch

Most settings are available via a series of buttons presses to access the menu item directly. Two buttons in the same row requires both buttons to be pressed.

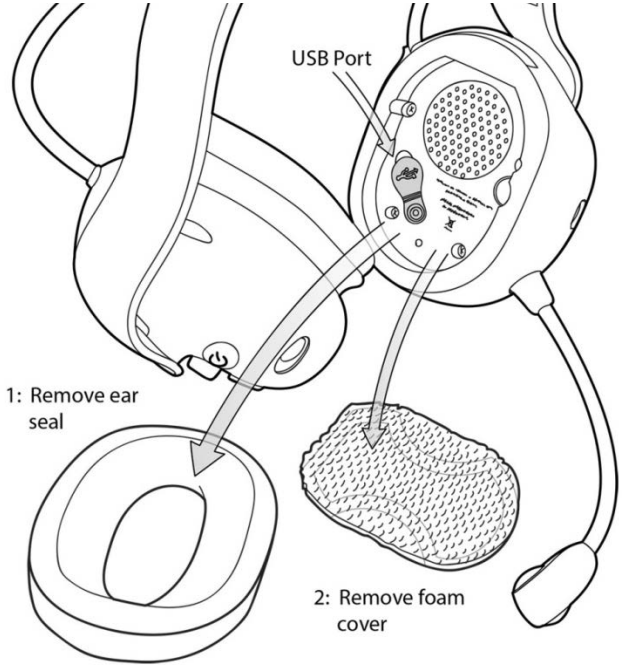
Action	Button						
	⏻	+	□	−	◀	○	▶
Power On/Off	●						
Volume Up		●					
Volume Down				●			
Radio PTT						●	
Toggle between Listen Thru & DECT Channel Select					●		●
Listen Thru Up							●
Listen Thru Down					●		
Radio DECT Channel Up							●
Radio DECT Channel Down					●		
Bluetooth Answer			Short				
Bluetooth Hang-up			Short				
Main Menu			Long				
Advanced Menu			●			●	
DECT Pairing	●					Long	
VOX level		●					●
Change Language				●	●		

● = Press & Release
Short = Short Press & Release, <3 seconds
Long = Long Press, >3 seconds

PC Programming

All of the headsets feature a USB port located inside the left dome. Using the Sonetics Configurator program, you can adjust some additional features on a Windows PC. Refer to the program for additional information.

Locating the USB Port



Installation of the Sonetics Configurator Windows Program

1. Go to www.SoneticsCorp.com/software.
2. *Download* and *Install* the program for the headset.
3. Plug in the USB cable from the headset to the computer.
4. Open the program.
5. Follow the directions of the configurator program.

Care and Maintenance

- Inspect ear seals and mic muff frequently for wear. If you see any defect such as holes or cracks in the ear domes, ear seals, or headband, headset should be immediately repaired or replaced.
- Wipe Headset and ear seals with a mild soap and water mixture only. The foam mic muff may be removed and cleaned in a mild detergent, or replaced by ordering from Sonetics.

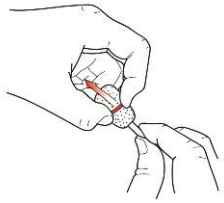
⚠ ***WARNING: Do not store the headset in high temperature environments or direct sunlight.***

Mic Muff Replacement

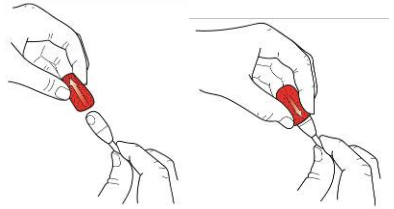
Replace the microphone windscreen every 3 months for optimal performance.

To replace the Mic Muff:

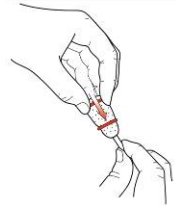
1. Remove the old mic muff and o-ring holding the mic muff in place.



2. Place the new mic muff over the microphone.



3. Slide the o-ring over the mic muff to retain it to the microphone as shown.



Ear Seal Replacement

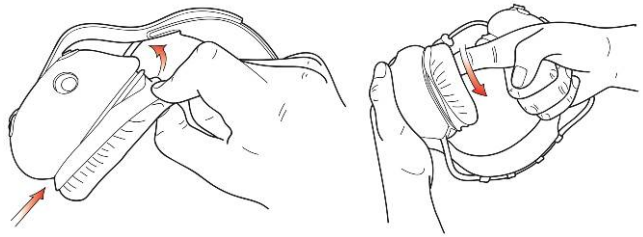
Replace the ear seals every 6 months for optimal performance and conformity to NRR.

⚠ ***WARNING: Worn ear seals will degrade the headsets ability to reduce noise and protect the users hearing.***

To replace the ear seals:

1. Remove the old ear seal by pulling on the edge and over the lip of the ear dome.

2. Place the new ear seal staring at the bottom, pull over the lip of the ear dome using your finger. Do not use any sharp tool as it may damage the ear seal and reduce hearing protection.



Troubleshooting

General

1. Verify the headset is turned on.
2. Verify the battery is charged and within it's useable life.
3. Verify the talk text is facing the user's mouth on the microphone and located within ¼" of the user's mouth.

Wired Auxiliary

1. Verify the connection to the 2-way radio.
2. Verify the programming in the radio.
3. Verify the PR adaptor to the make and model of the radio.

Wireless Bluetooth

Disconnects, intermittent connectivity, or difficulty finding, pairing, or connecting.

1. Verify your device and headset model uses Bluetooth.
2. Check that you are in range of the Bluetooth accessory with which you are trying to pair your device.
3. Turn on Bluetooth on your device.
4. Turn on discoverable mode on your device.
5. Cycle the power on the headset and/or the device being connected to.
6. On your device, find the headset in the list. If your device says Not Connected, tap the name of your headset to attempt to connect it.
7. Fully charge both headset and the device.
8. Delete the headset from your device and create a new pairing.
9. Update your device to the latest Bluetooth firmware.

Wireless DECT

Disconnects, intermittent connectivity, or difficulty finding, pairing, or connecting.

1. Verify the headset is a Wireless DECT model.
2. Check that you are in range of the DECT Base Station.
3. Verify the Base Station and the Headset are in pairing mode.
4. The Sonetics DECT headset will only pair with other Sonetics DECT Base Stations.
5. Cycle the power on the headset and/or the Base Station.
6. Fully charge both the headset and the Base Station (if applicable).
7. Check location of the base station and external antenna location. The base station should not be installed inside metal enclosures or any other location closer than 4 inches to a metal object or surface.

No audio communication and/or PTT from or to the base.

1. Ensure that power is turned on to the wireless headset and it is connected.
2. Ensure that the modular communication cable is connected between the base station and intercom.
3. Check the modular communication cable between the base station and intercom for continuity.
4. Ensure correct polarity of the modular plug on both ends of the modular cable.

Poor quality audio, low or distorted received or transmitted audio.

1. Ensure that the volume level is properly adjusted on the intercom. For digital intercom series intercoms, it is recommended that the volume level is set as high as possible on the intercom without causing distorted audio on the headset side, and that the volume control on the headset is adjusted for comfortable listening.
2. Poor quality audio can also be caused by a defective headset. Check operation with a known, well-functioning headset.
3. Ensure that the proper base station model for your intercom is used.

Audible interference from portable and mobile radios.

1. The wireless system is tested and proven to be immune to interferences from portable and mobile communication equipment operated anywhere in the frequency spectrum from 30MHz to 18GHz. However, care should be taken with installation of communication cables between the intercom and the base station. These cables should be routed away from portable and mobile radios and antenna cabling in order to prevent RF interference from such devices.

If a problem persists contact Sonetics Service for additional help.

Glossary

Base Station

Wireless DECT base unit that the wireless DECT headsets pair and link to for communication.

Bluetooth

Wireless standard in the 2.4GHz wireless range.

dBA

A-Weighted SPL unit of measure.

DECT

Digital Enhanced Cordless Telecommunications wireless standard in the 1.9GHz wireless range.

Dosimeter

Measure the individual's expose over time. In this case the SPL.

Link(ing)

The temporary wireless connection each time.

Pair(ing)

To create a semi-permanent wireless connection.

PTT

Push to Talk. Typically used to describe radio transmitting.

SPL

Sound Pressure Level. Measurement of sound loudness. Measured in dBA.

Specifications

Headset

Weights

Over Head: 15.8oz / 448g | 17.8oz / 504g with Ruggedizers
Behind Head: 16.2oz / 458g | 18.1oz / 514g with Ruggedizers

Power

Battery: 3.7V rechargeable lithium ion
Battery Life: >24 hours @ 25C
Protection: Over voltage, under voltage, over current and over temperature protection
AC Charge source: Supplied 12VDC, 500mA wall charger
DC Charge source: 5VDC to 16VDC, 1.5A minimum
Charge Time: <4 hours for fully discharged battery

Environmental

Operating temperature: -40°F to 140°F / -40°C to 60°C
Storage temperature: -4°F to 122°F / -20°C to 50°C
Charging Temperature: 32°F to 113°F / 0°C to 45°C
IP-Rating: IP-67 (Dust Tight, Immersion to 1 meter for 30min)

Regulatory

FCC

FCC ID APX379: V9N950325200V1
FCC ID APX377: V9N960325300V1
FCC ID APX375: V9N950325400V1
FCC Part 15: All Models

Industry Canada

IC UPN APX379: 7895A-950325200
IC UPN APX377: 7895A-950325300
IC UPN APX375: 7895A-950325400

ISO

Conducted Transients: 7637-2
Quality Management System: ISO9001:2008

MIL SPEC

Chemical Exposure: Intermittent Exposure MIL-STD 810 Method 504: Isopropyl alcohol, Formula 409®, WD-40®, Windex®, Bleach/Water (1:1), Mineral oil, Synthetic Sweat, Jet A Fuel, Kerosene, Gasoline, Deicing (Ethylene or Propylene Glycol mixtures), Potassium-Acetate based solution, Ansulite.

Not Approved for use with Skydrol® or equivalent.

Humidity: MIL-STD 810F and 810G
Temperature Shock: MIL-STD 810F and 810G

NRR

Behind Head NRR Rating: 20dB
Over Head NRR Rating: 20dB

SAE

Conducted Immunity: J1113-11
Electrostatic Discharge: J1113-13
Radiated Emissions: J1113-41
Radiated Immunity: J1113-21
Salt Spray: J1455, Sec. 4.3
Vibration: J1455 Sec. 4.9

UL

UL1642 Standard for Lithium Batteries

UN

UN38.3 UN Transportation Testing for Lithium Batteries

Bluetooth® Specifications

Class:	Class 2 Device
Frequency Bandwidth:	2400 MHz to 2485 MHz
Maximum Output Power:	2.5 mW / 4 dBm
Range:	Up to Bluetooth standard 33 feet (10 meters)
Version:	Bluetooth 3.0 with secure simple pairing

DECT Specifications

Common DECT Specifications

Carrier Spacing:	1.724 MHz
Time Slots:	2 x 12 (up and down stream)
Channel Allocation:	Dynamic
Encryption:	DECT Standard Cipher with 35-bit initialization vector
Audio Bandwidth:	300 Hz to 3.4 kHz, Narrow Band, G.726 compression 50 Hz to 7 kHz, Wide Band, G.722 compression

Region 1 Specific Specifications

Authorized for use in:	Canada, USA
Frequency Bandwidth:	1920 MHz to 1930 MHz
Number of Carriers:	5
Total Time Slots:	60 in G.726(narrow band) / 30 in G.722(wide band)
Average Output Power:	4 mW
Maximum Output Power:	100 mW
Range (line of sight):	1600 feet maximum

Important Safety Information

⚠ ***CAUTION! Follow all warnings and instructions marked on the product or contained in the owner's manual.***

When using this product, always follow basic safety precautions to reduce the risk of fire, electric shock and injury to persons, including the following:

- ⚠ The headset water and dust egress IP rating does not apply when the battery door or Auxiliary input door is open. DO NOT expose this unit to rain or moisture with either door open.
- ⚠ The headset is not certified for explosive environments. Do not use the headset to report a gas leak in the vicinity of the leak.
- ⚠ There are no user serviceable parts inside the headset. Disassembly will void the warranty and will degrade the water sealing and hearing protection.
- ⚠ Use only the power adapters, power cords and batteries indicated in the manual. If more than one type of power adapter is included in the product, the manual specifies which adapter should be used for each component. Be sure to use the proper adapter for each product component.
- ⚠ Do not place the power cord where it creates a trip hazard or where it could become chafed and create a fire or electrical hazard.
- ⚠ Do not subject the unit to high temperatures or leave it in direct sunlight for an extended period of time.
- ⚠ Retention of dangerous objects: The Headset may hold small objects in the area of the earpiece. Before use, check that the earpiece area is free of staples, pins, clips or any other small metallic objects or foreign matter.

SAVE THESE INSTRUCTIONS

General Warning for Sensitive Electronic Devices

This equipment and any radio-based can electronic potentially cause electromagnetic based interference with other equipment and can be interfered with other equipment. This also applies with DECT based Equipment. Due to the very low transmission power associated with DECT the chance for interference is small. However some specific precautions must be taken into account for sensitive electronic equipment e.g. sensitive laboratory equipment, medical instruments or medical implants to avoid incidental influence of equipment operated in straight nearness to sensitive electronic equipment. You are therefore advised not to place the DECT equipment or its antenna in close proximity to sensitive equipment by maintaining a 20cm minimum distance between the sensitive equipment even in standby mode. Please also consider referencing the documentation provided by us and the manufacturer of sensitive electronic items guiding its proper usage.

General Communication Privacy Notice

Although this equipment may contain specific protocols that enhance security and privacy of communication, privacy of communication may not be ensured when using this equipment.

Industry Canada (I.C.) Notice

This section applies to radio frequency equipment bearing an I.C. Equipment ID Number (UPN).
This device if labeled with an IC UPN, complies with Industry Canada license-exempt RSS standard(s).
Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes:
(1) le dispositif ne doit pas produire de brouillage préjudiciable, et
(2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Canada SAR Information:
This device contains a radio transmitter. This device has been shown to be capable of compliance for localized specific absorption rate for uncontrolled environmental / general public exposure limits specified in RSS-102, ANSI/IEEC95.1-2002 and have been tested in accordance with the measurement procedures specified in IEE 1528-2003.

Déclaration d'exposition aux radiations: Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

Any base station or approved base station antenna meant to be used in conjunction with this equipment must not be used in close proximity to the body. Keep a minimum distance of greater than 20 CM to the human body. This device and antenna must not be co-located in conjunction with any other equipment antenna or transmitter.
This class A digital apparatus complies with Canada ICES-003. CET appareil numérique de la classe A est conforme à la norme NMB-003 et CNR 210 d'Industrie Canada.

FCC Part 15 Information

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

Modifications not expressly approved by Sonetics Corporation could void the user's authority to operate the equipment.

Privacy of communications may not be ensured when using this device.

FCC PART 15.105(a): Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC/IC RF Exposure Warning

- This product complies with FCC radiation exposure limits set forth for an uncontrolled environment.
- The headset is designed for body-worn operation and meets FCC RF exposure guidelines when used accessories supplied with this product. (All necessary accessories are included in the package; any additional or optional accessories are not required for compliance with the guidelines.) Use of other accessories might not comply with FCC or IC RF exposure guidelines.
- This product may not be collocated or operated in conjunction with any other antenna or transmitter.
- Any base station or approved base station antenna meant to be used in conjunction with this equipment must not be used in close proximity to the body Keep a minimum distance between human body and base station and base antenna of at least 20 CM (8.0 inches) at all times.
- This headset device and antenna must not be co-located in conjunction with any other equipment antenna or transmitter.
- This headset has been tested and meets the FCC RF exposure guidelines.

Rechargeable Battery Information

⚠ ***CAUTION!***

Risk of explosion if battery is replaced by an incorrect type!
Dispose of used batteries according to the instructions.
Do not open or mutilate the battery.
Disconnect the battery before shipping this product.

- ⚠ This equipment contains a rechargeable Lithium-Ion (Li-Ion) battery. This battery is not user-serviceable.
- ⚠ Do not modify or attempt to open the battery cell. In case of exposure to the cell contents, wash the affected area thoroughly and seek medical attention.
- ⚠ Do not expose the battery to temperatures in excess of 140° F (60° C).
- ⚠ Do not short-circuit the battery or expose battery to moisture
- ⚠ Exercise care when handling a battery near conductive materials such as jewelry or buttons: conductive materials can short the battery, and the battery or conductor can overheat and cause burns.
- ⚠ When charging this equipment, only use the charger designed to charge the battery as specified in the owner's manual: using any other charger may damage the product or cause the battery to explode.
- ⚠ Before placing the headset in the charger, make sure the battery is installed and the battery cover is securely in place.
- ⚠ Do not place the batteries in your regular trash. All batteries must be recycled or disposed of in an environmentally sound manner. Contact your local waste management officials for information and regulations on the proper collection, recycling, and disposal of batteries.
- ⚠ Use only the replacement batteries approved by Sonetics Corporation which have internal protection circuit, use of non-approved battery replacements may cause fire, injury or damage product.
- ⚠ Always observe correct battery polarity during use and charging.

⚠ ***Do not place batteries in your regular trash.***
⚠ ***All batteries must be recycled or disposed of properly.***

Important NRR Information

To the user, the EPA requires the Sonetics Corporation to provide the following information:

Model: NRR User Information (EPA Noise Reduction Rating)

Model (Behind Head) Attenuation Characteristics

	Frequency in Hz								
Subject	125	250	500	1000	2000	3150	4000	6300	8000
Mean	16.3	15.5	19.8	27.3	31.4	39.2	40.6	41.2	38.7
Std. Dev	2.7	1.9	2.1	2.2	2.7	3.0	3.4	2.8	3.1

Overall device NRR when properly fitted is: = 20dB

Model (Under Helmet) Attenuation Characteristics

	Frequency in Hz								
Subject	125	250	500	1000	2000	3150	4000	6300	8000
Mean	16.3	16.4	20.4	26.2	32.2	37.0	39.6	40.8	40.0
Std. Dev	3.1	2.1	1.9	2.1	3.5	3.1	3.8	3.0	3.1

Overall device NRR when properly fitted is: = 20dB

Model (Over-the-Head) Attenuation Characteristics

	Frequency in Hz								
Subject	125	250	500	1000	2000	3150	4000	6300	8000
Mean	13.8	14.3	20.3	28.5	32.4	36.9	40.7	41.3	38.2
Std. Dev	1.7	1.6	2.2	2.7	2.4	3.2	3.4	3.8	3.1

Overall device NRR when properly fitted is: = 20dB

Notice: Improper fit of this device will reduce its effectiveness in attenuating noise (See fitting instructions).

Important Ear Muff Fitting Instructions:

- Inspect hearing protectors for dirt damage and foreign objects each time before you place the hearing protector / headset on your head.
- Earmuffs offer excellent protection if the cups are fitted and adjusted properly. Your ears should be completely enclosed by the ear cups.
- Adjust the cups up or down to fit the headband securely at the crown of your head. The best performance is obtained when the cushions form a tight seal against your head. **(See Fitment Section for your specific headset type located in this User Manual)**
- Never attempt to physically modify/bend/overstress the headband which may compromise NRR rating, proper fit and void product warranty.
- Test the fit as follows:
    1) In a noisy environment, place the palms of your hands on both cups and push the cushions towards your head and release.
    2) You should not notice a significant difference in the noise level.
    3) If the noise seems to lessen when you press the cups, your earmuff is probably not fitted properly (If necessary reposition headset and ensure hat, hair or jewelry are not interfering with proper fit/seal of the muff pad to head.
- Regularly check cushions for wear and clean them occasionally as necessary with a damp cloth or disinfect ear seal surface with non-alcohol PPE wipes. (Do not use harsh detergents or any solvents which may damage the ear seal over time). Check ear seal cushions for wear. If the cushions become hard, damaged or otherwise deteriorate, they should be replaced promptly (Contact Sonetics or your authorized dealer for exact replacement parts.
- **Warning**: Hats, balaclavas, glasses or other items worn on the head may potentially prevent proper sealing and reduce the level of hearing protection significantly which can possibly cause hearing damage.

Although hearing protectors can be recommended for protection against the harmful effects of impulsive noise, the Noise Reduction Rating (NRR) is based on the attenuation of continuous noise and may not be an accurate indicator of the protection attainable against *impulsive* noise such as gunfire.

Cautionary Note: The level of noise entering a person's ear, when hearing protector is worn as directed, is closely approximated by the difference between the A-weighted environmental noise level and the NRR.

NRR Example:

1. The environmental noise level as measured at the ear is 92 dBA.
2. The NRR is (value on label) decibels (dB).
3. The level of noise entering the ear is approximately equal to [92 dB(A) -NRR] dB(A)].

CAUTION: For noise environments dominated by frequencies below 500 Hz "the C weighted environmental noise level should be used.''

Warning: This communication headset has been sealed by the factory to assure noise protection rating and lock out dust and moisture and has no internal user serviceable parts other than the batteries. Do not attempt to open or service the unit as this will potentially reduce NRR and the ability for the device to protect your hearing. Un-authorized disassembly, modification or servicing or nullifies warranty and my cause hearing loss or reduction in NRR rating if the factory seals or calibration is compromised.

Sonetics Standard Limited Warranty

Sonetics Corporation ("Sonetics") warrants to the original purchaser of its products that products will be free from defects in materials and workmanship under normal and proper use for the period of **one (1) year** from date of purchase.

Sonetics Corporation will repair or replace, at its option, any products showing factory defects during this warranty period, subject to the following provisions and obligations:

1. This warranty applies only to a new product sold through authorized channels of distribution.
2. All work under warranty must be performed by Sonetics Corporation or Sonetics Authorized Service Center.
3. All returned products must be shipped to our address, freight prepaid and Sonetics will return products to customer via ground freight. Any expedite fees or additional freight charges will be charged to customer.
4. Any attempt to repair, service, or alter the product in any way voids this warranty.
5. This warranty does not apply in the event of accident, abuse, misuse, liquid contact, improper installation, unauthorized repair, tampering, modification, fire, earthquake, or damage from other external sources – including damage caused by user-replaceable parts.
6. This warranty does not apply: (a) to consumable parts such as batteries, ear seals, intercom bags, cables, external power supplies, parts listed as accessories to a system, or other parts designed to diminish in function over time unless a failure is due to a defect in materials or workmanship; (b) to cosmetic damage or to defects caused by normal wear and tear or aging of the product; (c) to damage caused by use with non-Sonetics products; (d) to damage caused by operating the product outside the permitted or intended uses or environments described by Sonetics; (e) to damage caused by service performed by anyone who is not a representative of Sonetics or an Sonetics Authorized Service Provider; (f) to a product or part that has been modified without the written permission of Sonetics; (g) if any Sonetics serial number has been removed or defaced.
7. This warranty does not extend to any other equipment, apparatus, vehicle, aircraft, or watercraft to which this product may be attached or connected.

THE FOREGOING IS YOUR SOLE REMEDY FOR FAILURE IN SERVICE OR DEFECTS. SONETICS CORPORATION SHALL NOT BE LIABLE UNDER THIS OR ANY IMPLIED WARRANTY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, NOR FOR ANY INSTALLATION OR REMOVAL COSTS OR OTHER SERVICE FEES. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY OR FITNESS OF USE, WHICH ARE HEREBY EXCLUDED. TO THE EXTENT THAT THIS EXCLUSION IS NOT LEGALLY ENFORCEABLE, THE DURATION OF SUCH IMPLIED WARRANTIES SHALL BE LIMITED TO ONE (1) YEAR FROM DATE OF PURCHASE. NO SUIT FOR BREACH OF EXPRESS OR IMPLIED WARRANTY MAY BE BROUGHT AFTER ONE (1) YEAR FROM DATE OF PURCHASE.

Subject to the terms and limitations of this Sonetics Standard Limited Warranty, this warranty covers any new covered product found to be defective within the applicable warranty period. Sonetics reserves the right to examine the alleged defective covered product to determine whether this Sonetics Standard Limited Warranty is applicable, and final determination of warranty coverage lies solely with Sonetics. If Sonetics determines that warranty coverage applies, Sonetics reserves the right to either repair or replace a covered product or any part thereof, as determined by Sonetics in its sole discretion. If the product has been subjected to conditions which exclude coverage under the warranty, customer will be so advised. Customer may then authorize paid repair service or other disposition of the product. Notwithstanding any other provision of this warranty, if you sell or otherwise transfer ownership of your covered product, this Sonetics Standard Limited Warranty shall automatically terminate.

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