

QuietOn

Prevent hearing damage



USER GUIDE

Thank you for choosing QuietOn Dental active noise cancelling earplugs to ensure healthy hearing and protection against permanent damage to hearing.

Dental professionals (dentists, hygienists, technicians etc.) are exposed to dental noise from several sources. Various studies show evidence of damage to hearing caused by dental noise. The dental noise levels are typically between 66-91dB(A), but for short periods may even exceed 100dB(A).

However, these noise levels and resulting consequences such as irritation and delayed stress, tend to be ignored, simply because we become accustomed to these noises and pay no attention to this hidden risk for hearing loss. Nevertheless, the damaging effects of continuous dental noise exist. For patients, QuietOn offers psychological relief by reducing noises during the treatment which can otherwise increase anxiety levels.

QuietOn Dental is a certified hearing protector device (EN352) combining both active and passive noise cancellation technologies. It efficiently prevents the development of hearing damage when used correctly. QuietOn is optimized for use in the dental sector, since it reduces harmful noise levels while permitting verbal communication during treatments to continue. The reduction is most significant for low and high frequency noises. Human speech is of mid-frequency level where the reduction is moderate, and it is therefore possible to communicate with patient and staff while wearing QuietOn earplugs. Long battery life (50 hours from a single charge), and a no wires – no settings concept makes QuietOn very easy and practical to use.

QuietOn is much more efficient and intelligent than any passive hearing protection method. This smart active noise cancelling earplug contains a lot of high technology components despite its small size: microphone, speaker, battery and electronics. What is unique about QuietOn is that the microphone that analyses incoming sound is located within the audio canal of the earplug. As a result, the device's built-in speaker is able to produce specific anti-noises to cancel original sounds more accurately, thereby reducing considerably the noises that penetrate the user's ears. This patented structure also enables reduction of noises conducted by the skull into the ear.

Please read and follow these QuietOn Dental User Guide instructions carefully. Retain this QuietOn Dental user guide for future reference.

LABORATORY ATTENUATION

Foam eartips (active)

EN 352-5:2002 + A1:2005

| Frequency (Hz) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | SNR | 26 |
|-------------------------|----|-----|-----|-----|------|------|------|------|-----|----|
| Mean Attenuation (dB) | 42 | 42 | 36 | 29 | 25 | 30 | 34 | 43 | H | 25 |
| Standard Deviation (dB) | 5 | 5 | 4 | 5 | 5 | 5 | 6 | 4 | M | 22 |
| APV (dB) | 37 | 37 | 32 | 24 | 20 | 25 | 27 | 39 | L | 24 |

Silicone eartips (active)

EN 352-5:2002 + A1:2005

| Frequency (Hz) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | SNR | 22 |
|-------------------------|----|-----|-----|-----|------|------|------|------|-----|----|
| Mean Attenuation (dB) | 41 | 46 | 36 | 27 | 23 | 25 | 29 | 36 | H | 20 |
| Standard Deviation (dB) | 7 | 7 | 7 | 6 | 5 | 6 | 6 | 6 | M | 19 |
| APV (dB) | 34 | 39 | 29 | 21 | 17 | 18 | 22 | 29 | L | 20 |

Foam eartips (passive)

EN 352-2:2002

| Frequency (Hz) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | SNR | 28 |
|-------------------------|----|-----|-----|-----|------|------|------|------|-----|----|
| Mean Attenuation (dB) | 22 | 24 | 24 | 26 | 28 | 35 | 38 | 44 | H | 29 |
| Standard Deviation (dB) | 4 | 5 | 4 | 5 | 5 | 5 | 6 | 4 | M | 24 |
| APV (dB) | 18 | 19 | 21 | 21 | 23 | 30 | 32 | 40 | L | 22 |

Silicone eartips (passive)

EN 352-2:2002

| Frequency (Hz) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | SNR | 23 |
|-------------------------|----|-----|-----|-----|------|------|------|------|-----|----|
| Mean Attenuation (dB) | 23 | 25 | 24 | 22 | 25 | 32 | 28 | 39 | H | 23 |
| Standard Deviation (dB) | 6 | 7 | 7 | 5 | 5 | 6 | 6 | 6 | M | 20 |
| APV (dB) | 18 | 18 | 17 | 17 | 20 | 25 | 22 | 32 | L | 18 |

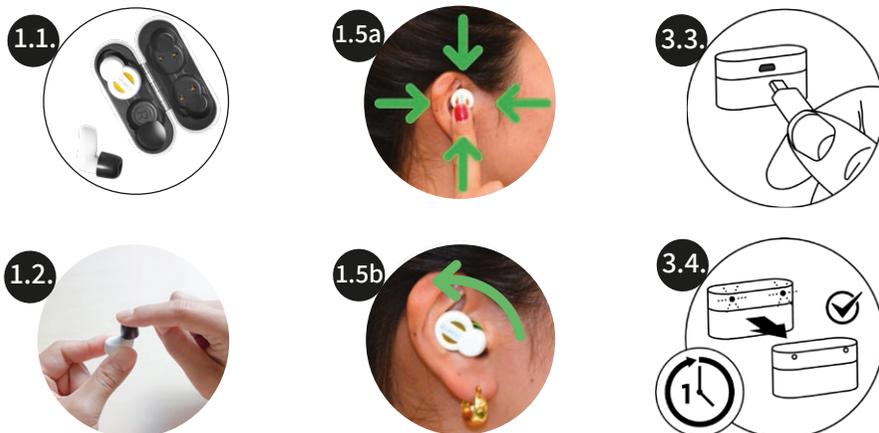
The highest level of external noise for which the ANR circuit is operating correctly is 100 dB(A).

QUIETON DENTAL INSTRUCTIONS FOR USE, CLEANING AND MAINTENANCE

For the optimal functionality of QuietOn Dental earplugs, it is very important to follow the instructions for use, cleaning and maintenance.

1 HOW TO INSERT QUIETON EARPLUGS CORRECTLY

- Take the earplug out of the charging case. QuietOn earplug turns on automatically when removed from the charging case and it turns off when returned into the case. QuietOn is already fully charged and ready to use.
- You can test the functionality by covering the earplug hole with your finger. A faint beep sound indicates that the active noise cancelling technology is functioning and that the earplug is charged and ready to use.
- If you want to use the retention cord, attach it around the earplug's plastic neck before inserting QuietOn into the ear.
- Pay attention to place earplug marked R to your right ear, and earplug marked L to your left ear. In the same way, match the earplugs correctly when returning them to the case after use.
- Turn the round and wider part of the earplug upwards, push it firmly inside your ear and twist backwards.
- You will hear a mild beep again but once the earplug is in the correct airtight position the beep will stop and the active noise cancelling technology is working. If the beep continues, check that you have inserted the earplug correctly or choose a different size eartip. If the beep continues, it may indicate dirt blocking the audio canal. Please consult the cleaning instructions below.
- Insert both earplugs correctly to ensure the optimal functioning of the active noise cancelling technology.
- To ensure a proper fit in the ear, choose eartips that are suitable for you. There are three options included in the sales package. The default pre-set tips are black Comply Memory foam tips. Use these or switch to different size silicone eartips (blue M or green S). Use only compatible QuietOn eartips that come with the dental package. Do not insert the earplug directly into the ear without correctly attaching the eartip.
- Enjoy safe working and communication with patient and colleagues during the entire treatment session.
- After use, remove the earplugs from your ears. If you intend using them again yourself, you can just wipe them and lay them on a tray for the next session. You can also remove the cord (if attached) and place the QuietOn earplugs into the charging case so that they do not consume in-built battery when not in active use. Match R and L earplugs with R and L slots respectively and close the lid carefully.
- If QuietOn earplugs have been used by the patient, clean the earplugs after each patient and change the tips. See the cleaning instructions below.



2 CHOOSING AND CHANGING THE EARTIPS

There are three different eartip options included in the QuietOn dental package. The earplugs come with standard pre-set black Comply Memory foam tips, size M. Use these for your personal use or change them to silicone tips of a different size (blue M or green S). There are 8 additional pairs of silicone tips in QuietOn dental package.

Ensure that the chosen eartip is small enough to penetrate the ear canal and fits securely. It is equally important to check that the tip is also large enough to ensure an airtight fit.

The eartips are changed by pulling them off and pushing new ones firmly against the earplugs. Avoid touching the delicate mesh as well as the inner components of the earplugs.

Use only compatible QuietOn eartips which come with the dental package. Do not insert the earplug directly into the ear without first correctly attaching the eartip.

The sizes of the eartips included into QuietOn Dental package are as follows:

- Comply Memory foam, Medium: 12.5 mm
- Blue silicone tip, Medium: 13.3 mm
- Green silicone tip, Small: 12.1 mm

The silicone version of the eartips can be disinfected and even autoclaved, or they can be disposed of after single use. They are suitable for use by various users (patients or colleagues).

The Comply Memory foam version is best suited for a specific single user. They cannot be disinfected nor autoclaved.

See more details on eartip cleaning below.

3 CHARGING

As delivered, QuietOn earplugs are ready to use and charged for the first approximately 50 hours of use. After use, clean the earplugs and tips as indicated below and place them back inside the charging case.

1. Place right and left earplugs correctly in the R and L marked slots inside the case. You can charge the earplugs with or without eartips on them.
2. Close the lid carefully.

3. Connect the micro-USB cable (included in the dental package) to the socket in the charging case. Add your standard adapter (providing 5V and 0.12-3A) and plug it into the local power source.
4. Active charging is indicated by blue lights on the front of the case.
5. When the lights turn off the re-charge is complete.
6. Maximum duration of the re-charge is 1 hour providing approximately 50 hours of usage time.

It is recommended to test QuietOn functionality after charging by covering the earplug hole with your finger. A faint beep indicates the device is working correctly.

QuietOn earplugs do not function when the battery is empty. The battery will self-discharge gradually even when it is not in use, like any battery. Please check the charge regularly and recharge at least once every four (4) months. The integrated battery is a non-replaceable lithium-ion battery.

4 CLEANING AND MAINTENANCE

QuietOn earplugs will last a very long time as long as you keep your ears clean and follow the recommended cleaning and maintenance instructions.

Please note that QuietOn active noise cancelling earplugs are fitted with various delicate electronic components, like a microphone, speaker and battery, all inside the tiny earplug. Avoid letting any moisture or liquid penetrate these inner parts of the earplug.

4.1. CLEANING THE PLASTIC BODY OF THE EARPLUG

- The plastic body can be gently cleaned with alcohol-free disinfection wipes
- Avoid touching the delicate mesh under the tip
- The earplug body is not waterproof, but it has an IP54 rating

4.2. CLEANING THE EARTIPS

Clean the tips regularly to avoid any dirt or ear wax becoming attached to them. Gathering dirt may impact functionality over time and the first indication of this will be a constant beeping sound. It can be an indication that there is some dirt or ear wax on the mesh, preventing the correct operation of the earplug. If this should happen, see the instructions below for cleaning the mesh.

- Remove the tip from the earplug by pulling it off gently
- Silicone tips can be cleaned by both alcohol-free disinfection wipes and disinfection wipes that contain alcohol. They are also autoclavable, if needed (4 min. 134C max). Bagging is recommended for autoclaving. They may be used as single use items as well.

- Comply Memory foam tips are absorbant foam material. They can be cleaned by alcohol-free disinfection wipes or with a damp cloth. They should not be soaked with liquid or wiped with alcohol.

4.3. CLEANING THE CHARGING CASE

- The QuietOn charging case can be cleaned by a dry or damp cloth or alcohol-free disinfection wipes. The charging case has no IP rating.
- Be very careful with the USB port.
- The interior of the charging case should be kept free of dust and debris. In case you need to clean the interior of the charging case, use only a dry cotton stick or microfibre cloth. Be careful never to bend the charging contacts.

4.4. CLEANING THE MESH

The mesh located under the tip protects the delicate audio canal of the earplug. It is made of thin woven polyester cloth. Any removal or misplacement of the mesh will result in the earplug malfunctioning. Avoid touching it.

If ears and earplugs are not cleaned regularly, dirt may gather on the mesh thereby blocking the proper operation of the earplug. This will damage the optimal flow of sound waves and will result in a continuous beep sound, indicating a functional error.

Please inspect the surface of the mesh and clean it only when needed. Repeated unnecessary cleaning may cause the mesh to detach.

When cleaning the delicate mesh, please follow carefully the instructions below. The best way to keep the earplugs in proper working order is to keep your ears clean.

1. During cleaning, keep the earplug's audio canal in a downwards position all the times to avoid any water flowing through the mesh into the device's electronic parts.
2. Please use only warm clean water and cotton sticks for cleaning the mesh.
3. Dip the cotton stick in the water and wipe the mesh gently with cotton sticks, avoid using sticks which are overly moist and do not push into the mesh too much.
4. Dry the mesh with a dry paper, wipe or cloth which will not leave any fibres or residuals on the mesh.
5. Repeat the wiping and drying process with clean sticks every time, until there is no more wax or dirt on the mesh.
6. Do not use soap, alcohol or any other detergents. Hard objects like toothpicks will also damage the delicate mesh.

Spare meshes are available by special request from QuietOn authorized distributors.

5 USE AND STORAGE CONDITIONS, DISPOSAL

QuietOn earplugs should be stored in the charging case. The recommended temperature ranges for QuietOn earplugs are:

- Operating and storage temperature range: -20°C to +50°C / -4°F to +122°F
- Charging temperature range: 0°C to +45°C / +32°F to +113°F

QuietOn earplugs and batteries should be recycled in keeping with local, regional and national laws. To properly recycle/dispose of the battery, always follow local solid waste disposal regulations.

6 TECHNICAL DATA

Manufacturer: QuietOn Oy, Hakamaantie 18, 90440 Kempele, Finland. www.quietondental.com

Preferential origin: EE/EU. Designed in Finland, manufactured in the EU

Product/material composition: Plastic: polyamide and polycarbonate. Silicone, Polyurethane rubber, Stainless steel

Battery: CoinPower "CP1254 A2" Lithium-Ion 50 mAh, (~300 Wh/l). Integrated, non-replaceable.

Patents: FI126466 (Finland), 10171904 (USA). Patent covers active noise cancelling earplugs which fit within the ear anatomy.

Certifications:

- CE, FCC + Compliance with UL/CSA/IEC/EN 60065-1
- EN-352-2 and EN-352-5 Hearing protection certificate according to 89/686EEC / PZT GmbH, An der Junkerei 48, D - 26389 Wilhelmshaven, Germany. Notified Body no. 1974.
- IP54 for the earplug body.
- This product conforms to all applicable EU directive requirements.
- Complete Declaration of Conformity can be found at www.quietondental.com

EMC compliance:

- This equipment meets the requirements of EMC standards EN 55022 and EN 55024 and EMC Directive 2014/30 EU.
- This equipment has been tested and been 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:
 - Redirect or relocate the receiving antenna
 - Increase the separation distance between the equipment and the receiver
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
 - Consult the dealer or an experienced radio/TV technician for help

7 WARNINGS / CAUTIONS

- When used according to these User Guide instructions, QuietOn Dental hearing protector device reduces noise levels, such as occupational, industrial or traffic noises entering the user's ears.
- If your hearing seems dulled or you hear a ringing or buzzing during or after any noise exposure, your hearing may be at risk and you should move away from such noise to protect your ears.
- If there is any drainage from your ear or you have an ear infection, consult your physician before wearing earplugs. Failure to do so may result in hearing loss or injury.
- The sound attenuation caused by the device can create a risk in situations where it is important to hear environmental sounds and warning alarms, for example, road traffic or warning sirens on a construction site. Note that alarm sounds will sound different when wearing the earplugs.
- Local laws may restrict the use of QuietOn in traffic. Always obey local laws.
- Do not use the earplugs if the beeping sound is continuous, despite correct insertion and cleaning. Contact the local QuietOn dental distributor for further instructions and product analysis.
- The device contains small parts that may present a choking hazard to small children and animals. The device is not suitable for children under three years of age.
- The earplugs are IP 54 compatible. The charging case is not IP rated.
- The device contains magnets, which may affect magnetic stripe cards, pacemakers or similar devices.
- The device is not waterproof. Do not let the unit become wet. This may create a short circuit, which can cause a risk of fire.
- Do not expose the device to high temperatures and respect the indicated temperature ranges. Use and store the device carefully.
- Do not use the device in case of mechanical failure of the device. This may create a short circuit, which can cause a risk of fire.

- Use only an approved Micro-USB charger or computer for charging: connected via USB to Micro-USB cable. The charger should be compatible with the safety standards: CE or UL / CSA / IEC / EN 60065-1.
- Do not leave the device in active charging mode for long periods of time.
- Note that if the battery is empty, this affects the performance levels since the active noise cancelling will not work. The attenuation is then at passive level.
- The performance of active noise cancelling earplugs may be adversely affected when sustained oscillation (whistling or instability) is perceived. If refitting the earplugs does not overcome this, you should contact QuietOn.

8 LIMITED WARRANTY AND LIABILITY

QuietOn Oy guarantees that QuietOn dental earplugs are free from any defects in manufacturing, materials and workmanship.

The warranty period is 2 years (in EU) or 1 year (non-EU countries) from the date of retail purchase from the authorized QuietOn dental package reseller, subject to the following conditions:

- Product has been delivered as a new and intact product in the original QuietOn dental packaging
- Product has been used according to the QuietOn instructions for use
- Product has been cleaned and maintained according to the QuietOn cleaning and maintenance instructions
- Product has been used in the recommended environmental temperatures.

This warranty does not cover

- Eartips
- Defects resulting from improper or unreasonable use or maintenance
- Failure to follow instructions for use and or cleaning and maintenance
- Accident
- Excess moisture, insects, lightning
- Power surges, connections to wrong voltage supply
- Unauthorized alteration or modification of the original package contents
- Damage caused by inadequate packing or shipping procedures
- Loss of, damage to or corruption of stored data
- Damage caused by use with non-QuietOn products
- Product that requires modification or adaptation to enable it to operate in any country other than the country for which it was designed, manufactured, approved and/or authorized
- Unauthorized opening of the cover or repair of products
- Products purchased from unauthorized QuietOn Dental dealers.

During the warranty period, QuietOn Oy will, at our discretion, repair or replace (using new or refurbished replacement parts) any defective parts within a reasonable period of time and do so free of charge.

Any warranty and/or return claims must be carried out by the authorized QuietOn dental package reseller in writing. QuietOn is not responsible for any costs arising from shipping, insurance or transportation or for any import fees, duties or taxes.

THE PROVISIONS OF THIS LIMITED WARRANTY ARE IN LIEU OF ANY OTHER WARRANTY, WHETHER EXPRESSED OR IMPLIED, WRITTEN OR ORAL, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. QUIETON CORPORATION'S MAXIMUM LIABILITY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID BY YOU FOR THE PRODUCT. TO THE EXTENT NOT PROHIBITED BY MANDATORY LAW, IN NO EVENT SHALL QUIETON BE LIABLE FOR LOSS OF, DAMAGE TO OR CORRUPTION OF STORED DATA, OR FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES HOWSOEVER CAUSED INCLUDING WITHOUT LIMITATION THE REPLACEMENT OF EQUIPMENT AND PROPERTY, AND ANY COSTS OF RECOVERING.

This limited warranty gives you specific legal rights, and you also may have other rights that vary from state to state or country to country. This warranty does not limit any mandatory consumer rights which you have under applicable consumer law; instead it grants you additional rights. Some places do not allow limitations on implied warranties or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

The district court in Helsinki, Finland shall have non-exclusive jurisdiction to deal with any controversy or claim arising out of or relating to your use of any QuietOn products and they shall be resolved by the district court in Helsinki, Finland.

QUIETON DENTAL PACKAGE CONTENTS

- One (1) pair of QuietOn active noise cancelling earplugs
- One (1) pair of QuietOn Comply Memory foam tips, attached to the earplugs
- Four (4) pairs of medium size (M) silicone eartips, Blue
- Four (4) pairs of small size (S) silicone eartips, Green
- One (1) charging case
- One (1) micro USB cable
- One (1) retention cord
- A user guide



QuietOn

Please consult www.quietondental.com for other user guide language versions.

For the availability of QuietOn accessories, please consult your local QuietOn Dental distributor.

www.quietondental.com

Manufacturer:
QuietOn Oy
Hakamaantie 18
90440 Kempele, Finland
www.quietondental.com

Preferential origin:
EE/EU
Designed in Finland
Manufactured in the EU

CERTIFIED HEARING PROTECTOR EN-352



Includes
COMPLY
Premium Earphone Tips

