Warranty

Manufacturer will repair or replace defective product at its option if returned within one year of purchase to our designated service facility. This warranty is in lieu of all other warranties, expressed or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose.

OTTO ENGINEERING INC.
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OTTO®

NoizeBarrier™ Micro

High-Definition Electronic Earplugs



User Manual

⚠ Caution

Failure to follow these recommendations may severely reduce the amount of hearing protection provided by the earplugs.

- At very high SPLs (above 125 dB SPL, where the limit to attenuation is the eartip itself), the foam eartips provide the most protection.
- Eartips fit ear canal diameters of 6-14 mm. See eartip section for details.
- The following applies when the device is turned off:

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

  Example

  1. The environmental noise level as measured at the ear is 100 dBA.
  2. The NRR is 25 decibels (dB).
  3. The level of noise entering the ear is approximately 75 dBA.

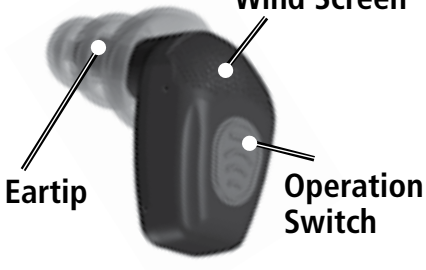
  Caution: For noise environments dominated by frequencies below 500 Hz the C-weighted environmental noise level should be used. Although hearing protectors can be recommended for protection against the harmful effects of impulsive noise, the Noise Reduction Rating (NRR) is based on the attenuation of *continuous* noise and may not be an accurate indicator of the protection attainable against *impulsive* noise such as gunfire.
- Earplugs must be fitted, adjusted and maintained to the manufacturer's instructions to achieve the expected attenuation and hearing protection.

⚠ Caution (continued)

- Use earplugs at all times in noisy surroundings.
- Earplugs are reusable. Regularly inspect the earplugs to assure their continued serviceability. Replace as recommended. See page 13.
- Connecting lanyard should not be used where there is a risk that the lanyard can snag on something during use.
- This product may be adversely affected by certain chemical substances. Further information should be sought from the manufacturer.
- This earplug is provided with level-dependent attenuation. The wearer should check correct operation before use. If distortion or failure is detected, the wearer should refer to the manufacturer's advice for maintenance.

  Warning: The output of the level-dependent circuit of the hearing protector may exceed the daily limit sound level.
- To determine if the device is working, insert it (see Insertion & Removal) or place it near the ear and turn it on (see Operation) and listen for the series of tones that indicate that the device has turned on and is functional.
- The charging case should be fully charged if the earplugs will be stored for an extended period of time. Check the charging case state of charge at least seasonally.

Inside the Box



Charging Case



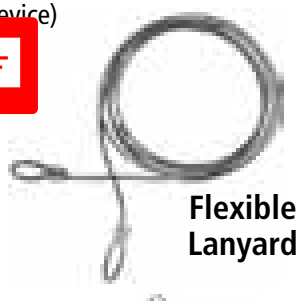
Eartips



Standard
3-flange
6-11mm
(Attached to device)

Large
3-flange
8-12 mm

Foam
8-14 mm



Flexible Lanyard



USB Cable

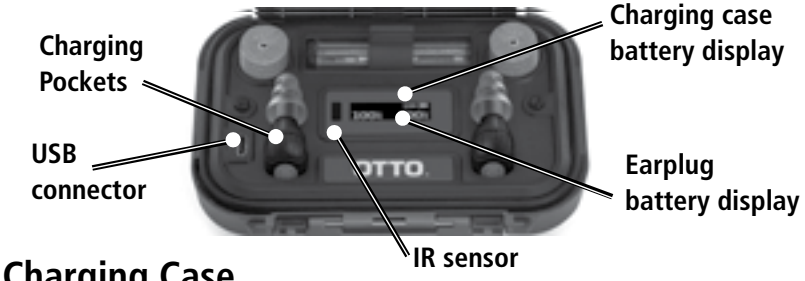


Maintenance Kit



Cleaning Brush

Charging



Charging Case

1. Insert USB cable into charging case, other end to power supply.
2. Charging case internal battery state-of-charge will be displayed.



3. To conserve the battery, the charging case display will shut off automatically after 30 seconds. To turn on the display, place one finger over the IR sensor or briefly close and reopen the charging case lid.
4. The earpieces should be stored in the charging case so that they will always be fully charged and ready to use.

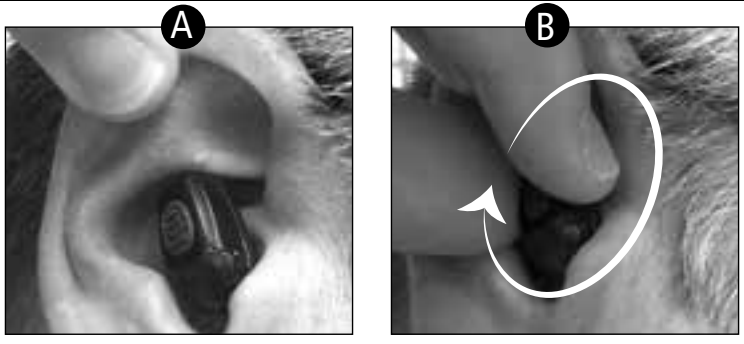
Earplugs

1. Place the earplug(s) into the charging pocket(s).
2. Within a few seconds the earplug battery display will provide the estimated charge status for any inserted earplugs. If the charge status is not displayed, the device is not making proper contact with the charging pocket.



3. Charging time for a fully discharged earplug is about 6 hours.

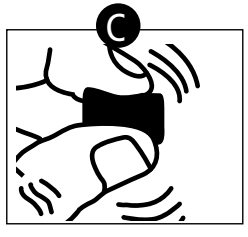
Insertion & Removal



Insertion

- Pulling the ear up and out helps to properly insert the earplugs (A).
- Twist and gently push the eartip until it seals in the ear canal (B).

Flange eartips: Moistening may ease insertion.
Foam eartips: Roll down or compress the foam eartip before inserting (C). Hold in the ear until the foam expands to create a tight seal in the ear canal.



Removal

- Remove the earplugs with a slow *twisting* motion (B).
- After removal, place earplugs in the charging case to keep them fully charged.

Operation

Operate the earplugs after inserting into the ears.



ON/OFF
To turn the earplugs ON and OFF, press and hold the switch for at least 2 seconds. When turning on, the earplugs will play an ascending series of three tones; when turning off, a descending series will be played. When initially turned ON, the device will be set to the **LO** operation mode.

Operation (continued)

Dual-Mode Switch

Automatic Protection + Blast Protection Mode (LO)

- No interference with natural hearing; soft and loud sounds are heard naturally
- Automatically delivers 15-dB of hearing protection when steady-state noise exceeds safe exposure limits
- Blast protection

Enhancement + Protection Mode (HI)

- Amplifies soft and conversational sounds for improved communication and increased awareness of surroundings
- No amplification of loud sounds
- Blast protection

To switch between **LO** and **HI** operation modes, briefly press the switch. When entering the **HI** mode, the earplug will play two ascending tones; when entering **LO** mode, two descending tones will be played.

Low Charge Warning

When the earplug battery is nearing the end of charge, a repeating low frequency tone will be heard. The interval between tones will become shorter as the battery drains, before the unit completely shuts off.

Changing Eartips

The eartip that is most comfortable and seals the ear is the best choice. However, the eartip must seal well and prevent feedback (whistling) to provide proper protection. A shallow seal may reduce the expected sound amplification and hearing protection.

- Hold device firmly and pull on the eartip for removal.
- After eartip is removed, select a new eartip from those provided in the package.
- If lanyard is used, push the loop of the lanyard against the body of the device (refer to page 11 for lanyard installation).
- Then secure the eartip completely on the stem.
- Return the eartip flange (or foam) to its normal position.

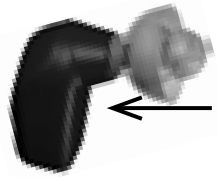


Correct

Incorrect

Using the Lanyard

Installation:



1. Make sure eartip is on securely.



2. Pull slide to make a loop.



3. Slide loop over the earplug.



4. Position loop against the body of the device.

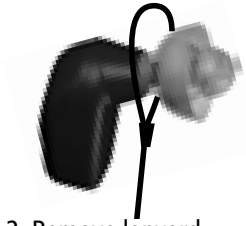


5. Pull lanyard tight on the earplug. Return the eartip (flange to its normal position)

Removal:



1. Pull slider to expand the loop.



2. Remove lanyard.

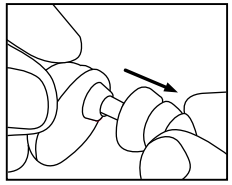
Note: Take precautions when using lanyard that it does not catch on a nearby object.

Changing Filters

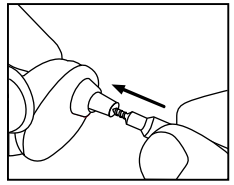
Each device has a special filter that enhances sound quality and prevents earwax from entering the device. A filter should be changed if the volume decreases or sound quality declines.

Filter Removal

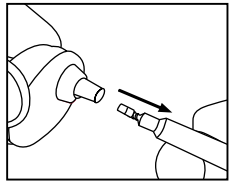
Note: Use the tool to remove the filter.



1. Remove eartip.



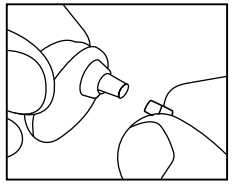
2. Insert tool into the filter.



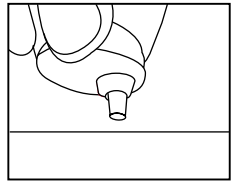
3. Remove filter and discard.

Filter Replacement

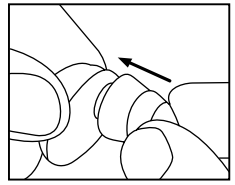
Note: Do not use the tool to replace the filter.



1. Insert a new filter.



2. Press gently against a hard surface to secure it in place.



3. Re-attach eartip.

Maintenance

Simple cleaning with the tool provided will keep the eartips clean and the devices working properly.

- Clean after each use. Wipe clean with a damp cloth.
- Do not clean with harsh chemicals. Alcohol is not recommended.
- Use the cleaning tool to pick out or brush off debris.
- 3-flange eartips can be removed and cleaned in mild detergent. Dry eartips thoroughly.
- Replace 3-flange eartips every 60-90 days.
- Replace foam eartips frequently, as needed.
- Remove the devices before using hair products.
- Do not expose to extreme heat or moisture.
- Avoid dropping or hitting on a hard surface.
- Use only accessories and spare parts from manufacturer to ensure continued performance to specification.

Storage

- Always store earplugs in charging case.
- Do not store other objects, except a lanyard, in the charging case.
- Do not store at less than -20˚C, greater than 40˚C, or in humidity greater than 75%RH.

SNR (Single Number Rating)

FOAM

Frequency (Hz)	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	35.9	31.5	35.6	38.5	37.5	39.2	44.3
Standard Deviation (dB)	4.7	4.3	5.0	4.5	3.7	3.5	4.9
Assumed Protection Value (dB)	31.2	27.2	30.7	34.0	33.8	35.8	39.4

H = 35 dB M =33 dB L = 30 dB SNR = 35 dB

ACTIVE ATTENUATION - CRITERION LEVELS

SWITCH POSITION	H-Noise	M-Noise	L-Noise
LO (dBA)	111.0	103.9	102.5
HIGH (dBA)	85.5	83.3	83.9

The European Union testing was conducted by Michael and Associates, Inc.
Report Q4968A and Q4974A

3-FLANGE

Frequency (Hz)	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	32.4	28.5	33.2	31.4	34.4	36.1	41.8
Standard Deviation (dB)	5.6	4.7	5.7	4.1	3.5	5.3	4.3
Assumed Protection Value (dB)	26.8	23.8	27.5	27.2	31.0	30.8	37.5

H = 31 dB M =28 dB L = 26 dB SNR = 31 dB

ACTIVE ATTENUATION - CRITERION LEVELS

SWITCH POSITION	H-Noise	M-Noise	L-Noise
LO (dBA)	109.7	101.5	99.0
HIGH (dBA)	83.4	82.8	82.8

The European Union testing was conducted by Michael and Associates, Inc.
Report Q4969A and Q4973A

This product is in compliance with EN 352-2:2002, EN 352-7:2002, and 2016/425.

Notified Body responsible for EC type examination: SATRA Technology Centre, Ltd.
Wyndham Way,Telford Way, Kettering, Northamptonshire, NN16 8SD, United Kingdom.

Declaration of Conformity available at www.otto-comm.com

CE 0321

NRR Rating

Noise Reduction Rating **28** **DECIBELS**

(WHEN USED AS DIRECTED)

THE RANGE OF NOISE REDUCTION RATINGS FOR EXISTING HEARING PROTECTORS IS APPROXIMATELY 0 TO 30 (HIGHER NUMBERS DENOTE GREATER EFFECTIVENESS)

OTTO ENGINEERING INC. **FOAM**

Federal law prohibits removal of this label prior to purchase. **EPA** **LABEL REQUIRED BY U.S. E.P.A. REGULATION 40 CFR Part 211, Subpart B.**

FOAM

1/3 Octave Band Center (Hz)	125	250	500	1000	2000	3150	4000	6300	8000
Mean Attenuation (dB)	29.8	31.4	33.1	36.3	39.0	40.8	39.6	45.6	46.3
Standard Deviation (dB)	2.9	3.0	4.1	4.5	2.5	3.1	3.0	3.4	4.5
NRR 28									

TEST REPORT NUMBER: VT-HEAR-3/25/18-1HP-P

Important: NRR is not attenuation, and the labeled NRR for most earplugs does not represent typical performance. While the labeled NRR is 28 dB, the typical user can expect to obtain a higher level of attenuation across frequencies when the earplugs are used as directed and the device is off.

NRR Rating

Noise Reduction Rating **23** **DECIBELS**

(WHEN USED AS DIRECTED)

THE RANGE OF NOISE REDUCTION RATINGS FOR EXISTING HEARING PROTECTORS IS APPROXIMATELY 0 TO 30 (HIGHER NUMBERS DENOTE GREATER EFFECTIVENESS)

OTTO ENGINEERING INC. **3-FLANGE**

Federal law prohibits removal of this label prior to purchase. **EPA** **LABEL REQUIRED BY U.S. E.P.A. REGULATION 40 CFR Part 211, Subpart B.**

3-FLANGE

1/3 Octave Band Center (Hz)	125	250	500	1000	2000	3150	4000	6300	8000
Mean Attenuation (dB)	27.1	29.4	31.4	33.8	35.9	38.7	38.9	42.2	43.1
Standard Deviation (dB)	4.6	5.5	5.5	5.0	4.8	4.7	5.3	7.9	5.8
NRR 23									

TEST REPORT NUMBER: VT-HEAR-4/18/18-3HP-P

Important: NRR is not attenuation, and the labeled NRR for most earplugs does not represent typical performance. While the labeled NRR is 23 dB, the typical user can expect to obtain a higher level of attenuation across frequencies when the earplugs are used as directed and the device is off.