

OTTO[®]

NoizeBarrier[®] Range SA Circumaural Headset

Technical Manual and Instructions for Use



IMPORTANT SAFETY WARNINGS

This NoizeBarrier® Range SA Headset reduces exposure to noise and loud sounds that can damage hearing. Be sure to follow the instructions in this manual carefully. Failure to follow these recommendations may severely reduce the amount of hearing protection provided by the headset.

- The headset must be worn at all times in noisy environments to avoid hearing loss/injury.
- Misuse of or failure to wear hearing protection when exposed to hazardous noise may result in hearing loss and/or injury. If you experience symptoms of hearing injury (ringing in ears, dulled hearing, headaches), contact your supervisor or a medical professional immediately.
- The headset must be fitted, adjusted and maintained in accordance with manufacturer's instructions to achieve the expected attenuation and hearing protection. Failure to do so may result in hearing loss and/or injury.
- The NoizeBarrier® Range SA headset provides audio signal sound pressure level limitation to limit the radio transmission audio signal to 82 dB effective to the ear.
- At approximately 30 minutes of battery life remaining, the headset will present an audible tone to the user indicating that there is low battery life. This will repeat every 2 minutes until the batteries are depleted. Talk-through powered by two AAA batteries.
- The thermoplastic polyurethane foam ear seals on the NoizeBarrier® Range SA may deteriorate with use and should be examined at frequent intervals for damage, such as cracking and leakage. Replace as recommended on page 7.
- Using cloth hygiene covers over the foam ear seals may affect the acoustic performance of the headset.
- The audibility of warning signals at a specific workplace may be impaired while using the NoizeBarrier® Range SA headset if the situational awareness functionality is not activated.
- The NoizeBarrier® Range SA headset may be adversely affected by certain chemical substances. Further information should be sought from the manufacturer.
- This earmuff is provided with electrical audio input. The wearer should check correct operation before use. If distortion or failure is detected, the wearer should refer to the manufacturer's advice.
- This headset 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 and replacement of the battery. See page 7.
- Warning: performance may deteriorate with battery usage. The typical period of continuous use that can be expected from the earmuff battery is 100 hours.
- Warning: The output of the electrical audio circuit of this hearing protector may exceed the daily limit sound level.
- Warning: The output of the level-dependent circuit of this hearing protector may exceed the external sound level.

NoizeBarrier® Range SA Instructions for Use

Introduction

The NoizeBarrier® Range SA headset provides industry-leading hearing protection and excellent situational awareness/talk-through capability for mission-critical operations. Advanced talk-through sound suppression circuitry enhances the ability to hear low-level sounds while protecting hearing.

Situational awareness functions are controlled by buttons on the left ear cup and powered by two AAA batteries that provide approximately 100 hours of use if a lithium battery is used.

An optional helmet-mount kit is available to change the headset from an over-the-head headband configuration to a top or rear rail helmet-mounted configuration while in the field without the use of tools. For convenience, a spare battery for the situational awareness functionality can be stored in each of the two rail-mount assemblies. See pages 6 and 7.

This manual covers the following equipment:

Model	Black	Flat Dark Earth	Olive Drab
NoizeBarrier® Range SA Headset	V4-11072BK	V4-11072OD	V4-11072FD
NoizeBarrier® Range SA Helmet Mounting Kit	C102359BK C102365BK	C102359FD C102365FD	C102359OD C102365OD

Supplied Equipment

Figure 1



NoizeBarrier® Range SA Headset

(Figure 1)

- | | |
|---------------------------|---|
| a) Headband | f) Situational awareness (talk-through) microphones |
| b) Adjustment frames | g) Battery compartment and cover |
| c) Audio cross-over cable | h) Power/Volume control |
| d) Ear cups | |
| e) Comply™ foam ear seals | |



Optional Helmet Mounting System for Helmets with Rails

(Figure 2)

- Swivel rail ear cup mount
- Helmet rail for accessories
- Rail mount frame

Helmet mounting instructions begin on page 8.

Features of the NoizeBarrier® Range SA Headset

- Circumaural headset compatible with major helmet systems
- Talk-through electronics for situational awareness (SA)
- Limits volume to safe level and lowers sound floor without clipping
- Passive Attenuation: 23 dB NRR
- Amplified hearing of external communications
- Easy-to-access + and - buttons on left ear cup control the volume of the situational awareness circuitry
- 5-step volume control adjusts +/- 12dB
- Situational Awareness/Talk-through is powered by two AAA batteries that provide up to 100 hours if lithium batteries are used with no degradation of performance over time.
- Automatic shut down after two hours of idle time
- Scalloped front ear cups reduce interference with rifle stock
- Low-profile silicone headband can easily be worn under most helmet systems
- Proprietary Comply™ thermoplastic polyurethane foam ear seals for secure and comfortable fit
- Ear seals snap in for easy field replacement
- MIL-STD-810G compliant
- Immersion tested and fully sealed to IP68 standards for 1 meter/31 minutes
- USA Country of Origin. TAA, BAA, and Berry Amendment compliant
- Optional helmet mount interface for Team Wendy® and the ARC rail mount system found on Ops-Core and other helmets.
- Each rail mount includes a battery holder for an extra battery
- Headset weight: 483 gm (19.57 oz.)

Situational Awareness Talk-Through Operation

The NoizeBarrier® Range SA Headset's talk-through technology allows users to hear normal sounds around them and maintain complete situational awareness (SA). At the same time, sound suppression circuitry reduces dangerously loud noises over 82 dB to safe levels. The NoizeBarrier® Range SA is unique in that it does not shut down situational awareness when loud noises, including impulse noises such as gunfire, are blocked. The headset will continue to transmit sounds at a safe volume.

When talk-through is not activated the headset works simply as a passive noise-reducing headset.

Operation

Install the Batteries to Power the Talk-Through Functionality

(Figure 3-6)

The NoizeBarrier® Range SA headset uses battery power to operate the situational awareness/talk-through functions.

1. Identify the rubberized battery covers on the ear cups.
2. With finger pressure, pry off the battery cover on one ear cup (Figure 3).
3. Install a AAA battery, aligning the '+' and '-' symbols on the battery with the markings in the battery compartment.
4. To close the battery cover, start by inserting one end of the cover into the battery compartment (Figure 4).
5. Slightly bend the cover and insert the other end into the opposite end of the compartment (Figure 5).
6. Press the battery cover securely into place over the chamber by applying pressure from the middle and moving outward to the ends (Figure 6).
7. Repeat the operation with the other ear cup.
8. When replacing batteries, be sure headset is off before opening battery compartment. (See instructions on page 7).



Figure 3



Figure 4



Figure 5



Figure 6

Wearing the Headset

(Note: If mounting the headset to the helmet with the optional Rail Mounting Kit, please see instructions beginning on page X.)

1. Identify the left and right ear seals. The Power/Volume buttons are on the left ear cup.
2. Place the headset over the head.
3. Adjust ear cup height by pulling or pushing on the cups until the ear seals are securely positioned over the ears. Adjustment is accomplished by extending and contracting the ear cup frames on either side of the ear cups while holding the headband in place.
4. For effective sound protection, be sure that the ear seals are completely sealed around the ear and obstacles such as hair, jewelry, or clothing are out of the way.

Powering Up and Using the Talk-through SA Function (Figure 7)

1. Place the headset on your head.
2. Power up active talk-through by pressing and holding either the + or – button on the left side of the headset until a long tone sounds to indicate that talk-through SA is active.
3. Volume + and – buttons adjust the talk-through SA audio for five volume levels. A tone will sound when maximum or minimum volumes are reached.
4. To power down the unit, press and hold either the + or – button on the headset until a different long tone sounds to indicate that talk-through SA is turned off.



Figure 7

Maintenance

Low Battery/Replacing Batteries

The NoizeBarrier® Range SA headset uses two AAA batteries to control situational awareness (talk-through). At approximately 30 minutes of battery life remaining, the headset will present an audible tone to the user indicating that there is low battery life. This will repeat every 2 minutes until the batteries are depleted.

Replacing the Ear Seals (Figures 8-12)

The ear seals are mounted in a removable frame for easy replacement.

1. Remove the ear seal by sliding fingers under the inside of the frame and pulling it straight out with a firm motion.
2. The foam liner inside the ear seal will fall out. Replace it with a new one.
3. Position a new ear seal over the ear cup. Align the TOP of the ear seal with the TOP label inside the ear cup.
4. Press firmly to squeeze the ear seal into the cup until it snaps into place.



Figure 8



Figure 9



Figure 10



Figure 11



Figure 12

Cleaning the Headset

- Use a soft cloth to remove dirt and debris from the headset.
- Use a damp soft cloth to wipe down the ear seals.
- Avoid full immersion of the NoizeBarrier® Range SA headset in liquid for cleaning.

Storage

When not in use, store the headset in temperatures between -40° and +71°C.

Using the Headset with Optional NoizeBarrier® Range SA Helmet Mount Kit

(Figures 13-17)

(Parts: C102359BK, C102359FD, C102359OD, C102365BK, C102365FD, C102365OD)

The NoizeBarrier® Range SA headset can easily convert from over-the-head use to be able to mount on helmet rails with the use of the optional helmet mounting kit. The helmet mount kit also includes a compartment for a spare battery on each ear cup. Follow the steps below for Team Wendy® and ARC rail mount system found on Ops-Core and other helmets.

1. Locate the lip on the headband. Pull the smaller section away from the headband. Pull the cross-over cable from under the lip on the headband so it hangs free. (Figure 13).
2. Holding an ear cup with one hand, with the other hand firmly grasp the plastic adjustment frame where it attaches to the ear cup. Pull the adjustment frame off the pivot point on the ear cup, being careful not to pull on the wire form portion of the adjustment frame. The frame will unsnap from the retention ball on the ear cup (Figure 14).
3. Repeat the operation on the frame on the other side of the same ear cup.
4. Repeat steps 2 and 3 on the other ear cup to fully remove the headband.
5. Position the rail mount over the ear cup and snap the rail mount frames onto the pivot points on the ear cups (Figure 15).
NOTE: The spare battery compartment on the rail mount frames should be positioned at the top of the frame.
6. Attach the other rail mount to the other ear cup.
7. Slide the ear cup into the top or rear rails by inserting the tab on the back side of the swivel base into the rail guide. The crossover cable is routed along the rear and the boom microphone faces the front of the helmet (Figure 16).
8. For Team Wendy® and ARC rail mount system found on Ops-Core and other helmets, remove spare battery from the compartment, remove the helmet mount (Figure 17).



Figure 13



Figure 14



Figure 15



Figure 16



Figure 17

Positioning the Headset (Figures 18-20)

1. The rail system mount has two positions. The first position is outward (Figure 18). In this position the ear cups sit slightly off the head for comfort. The second position is inward to provide contact with the head and a solid seal around the ears when in a noisy environment.
2. To engage the ear cups against the head, press the palms of the hands inward against the wire form adjustment frames until they snap into the inward position against the head (Figure 19). This is best accomplished by pushing against the bend in the wire frames—pushing inward on the ear cups WILL NOT engage the inward detent.
3. To release the headset to the outward position, squeeze the wire forms together (Figure 20). This will release the adjustment frames to swing outward.



Figure 18



Figure 19



Figure 20

Troubleshooting

Problem	Possible Causes	Suggested Action
Headset will not power on talk-through/situational awareness	Depleted batteries	Replace batteries
	Batteries improperly installed	Check polarity of batteries
	Situational awareness volume turned all the way down	Press + button to increase volume

NRR (Noise Reduction 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.	Ear Muffs
Federal law prohibits removal of this label prior to purchase.	
LABEL REQUIRED BY U.S. E.P.A. REGULATION 40 CFR Part 211, Subpart B.	

Earmuffs

Frequency (HZ)	125	250	500	1000	2000	3150	4000	6300	8000
Mean Attenuation (dB)	17.9	19.0	24.4	29.2	31.5	36.8	39.2	37.4	36.2
Standard Deviation (dB)	2.7	1.9	2.2	1.8	2.0	3.0	2.7	2.9	3.5
NRR=23 dB; Headband Force=2.3 lbs.					PER ANSI S3.19-1974				

TEST REPORT ID: Q5343A, Michael and Associates, Inc.

Important: NRR is not attenuation, and the labeled NRR for most earmuffs 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 ear muffs are used as directed and the device is off.

SNR (Single Number Rating)

Classification:

NoizeBarrier® Range SA EN 352-1: 2002

Frequency (HZ)	125	250	500	1000	2000	4000	8000	SNR = 29 dB
Mean Attenuation (dB)	17.9	19.2	25.7	29.7	31.1	37.5	37.8	H = 31 dB
Standard Deviation (dB)	2.8	1.9	2.2	1.7	2.7	3.3	2.9	M = 26 dB
Assumed Protection Value (dB)	15.1	17.3	23.5	27.9	28.4	34.3	34.9	L = 20 dB

EN 352-4: 2001 +A1: 2005

Criterion levels H = 114.8 dBA M = 108.3 dBA L = 98.9 dBA

Sound pressure level of external noise for which sound pressure level under the earmuff first exceeds 85 dBA

EN 352-6:2002

Electrical input for which the mean + one standard deviation of A-weighted diffuse-field related sound = 119.1 mV pressure level is equal 82 dB

The European Union testing was conducted by Michael and Associates, Inc. Report Q5797A, Q6031A and Q6033A.

This product is in compliance with EN 352-1:2002, EN 352-4:2001, EN 352-6:2002 and 2016/425.

Notified Body responsible for EU type examination: SATRA Technology Europe, Ltd., Bracetown Business Park, Clonee, Co. Meath, D15 YN2P, Ireland (Notified Body No. 2777)



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

Spare Parts and Accessories

Description	Part Number
Ops-Core Helmet Mounting Kit - Flat Dark Earth	C102359FD
Ops-Core Helmet Mounting Kit – Olive Drab	C102359OD
Ops-Core Helmet Mounting Kit – Black	C102359BK
Team Wendy® Helmet Mounting Kit - Flat Dark Earth	C102365FD
Team Wendy® Helmet Mounting Kit – Olive Drab	C102365OD
Team Wendy® Helmet Mounting Kit - Black	C102365BK
Headset bag with drawstring	C760607
Soft Comply™ foam snap-in ear seal, standard size	C807485
Soft Comply™ foam snap-in ear seal, thin size	C807504
Over-The-Head headband assembly	C102574

Information on Disposal of Old Electrical and Electronic Equipment (applicable for EU countries that have adopted separate waste collection systems).



Products with the symbol (crossed-out wheeled bin) cannot be disposed as household waste.

Old electrical and electronic equipment should be recycled at a facility capable of handling these items and their waste byproducts. Contact your local authority for details in locating a recycle facility nearest to you. Proper recycling and waste disposal will help conserve resources while still preventing detrimental effects on our health and the environment.



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer & other reproductive harm. For more information go to <http://www.P65Warnings.ca.gov>

Product Registration

Register to receive email alerts whenever updates or mission critical information regarding your product becomes available. <https://go.otto-comm.com/product-registration>

For questions or more information, please contact:

OTTO®

10 West Main Street
 Carpentersville, IL U.S.A. 60110
 Toll Free Phone: 888-234-OTTO (6886)
 Phone: 847-428-7171
 Fax: 847-551-1343
 E-mail: info@ottoexcellence.com
www.otto-comm.com