Sensear

SAFETY THAT SPEAKS VOLUMES

SM1R

Manual

English

Document Reference:	Revision:	Date:
DOC00085	8.00	Apr 28, 2026

English

TABLE OF CONTENTS:

English

1. INTRODUCTION:

The SM1R is a state-of-the-art hearing protection (i.e., protects against harmful noise) and communication solution that allows you to retain 360º situational awareness while remaining in full contact with your team via two-way radio communication. The SM1R headset uses power from two-way radios, and must be connected by the appropriate SRCK60xx cable to the radio to provide both situational awareness and communication to the two-way radio.

All Sensear hearing protection devices contain Sensear's proprietary SENS® Technology that allows for clear face to face communication while remaining protected from hazardous workplace noise. Welcome to the next generation of hearing protection and communication solutions.

1.1 INTENDED USE:

Sensear hearing protection and communication devices are intended to provide users with protection against hazardous environmental and workplace noise while allowing users to clearly communicate via two-way radio communication.

It is expected that all users read and familiarize themselves with these provided user instructions and appropriately apply them when operating Sensear models. It is also expected that users comply with local regulatory requirements for hearing protection and connectivity to third-party devices. Always use product specific Sensear replacement parts. Use of unauthorized parts may reduce the protection you receive from this product and void the warranty.

1.2 IMPORTANT NOTE:

Users should read, understand, and retain these instructions for future reference. Follow all safety instructions in this manual. Contact Sensear if you have any questions via our website at www.sensear.com. Users should never disassemble intrinsically safe headsets, as doing so could impact the safety of the device. All repairs should be returned to the manufacturer for proper and safe repairs.

2. STANDARD (NON-INTRINSICALLY SAFE) MODELS:

This manual covers the following non-intrinsically safe models:

- SM1R - Two-way radio headset
- SMBM0001 - Boom microphone
- SMBM0002 - Throat microphone
- SRCK60xx - Two-way radio cables

NOTE: Non-Intrinsically safe SM1R units are easily identified by the grey accent band on each ear cup.

Visit sensear.com/two-way-radio-cable-compatibility-tool to identify the specific accessory cables for your radio via our Two-Way Radio Cable Compatibility Tool.

3. INTRINSICALLY SAFE MODELS:

This manual covers the following intrinsically safe models certified to NA standards for use in potentially explosive atmospheres:

- SM1R-IS - Two-way radio headset for hazardous locations
- SMBM0003 - Boom microphone
- SMBM0002 - Throat microphone
- SRCK60xx0001 - Two-way radio cables

NOTE: Intrinsically safe headsets certified for NA markets can easily be identified by the red band accent on the above models. The user is responsible for ensuring that the appropriate devices and accessories are used in appropriate environments as defined by the approved area classifications and according to the user instructions. Failure to use appropriately classified devices and accessories may result in serious injury or death.

Users are also responsible for routinely inspecting the integrity and operability of these devices. If at any time the devices are compromised, the devices must be immediately taken out of service. Contact Sensear customer service for information regarding repairs or replacement at info@sensear.com.

Visit sensear.com/two-way-radio-cable-compatibility-tool to identify the specific accessory cables for your radio via our Two-Way Radio Cable Compatibility Tool.

3.1 INTRINSICALLY SAFE LABELS AND WARNINGS:

Sensear's Intrinsically Safe Headsets meet the following standards for use in explosive gas, dust, and mining environments. Check the product label to identify the ratings applicable to the headset.

Users are responsible for only using Sensear Intrinsically Safe models identified in this manual in the appropriate atmospheres as defined by the approved classifications and per user instructions. Failure to do so may result in serious injury or death.

SGSNA/17/SUW/00224
Certified by SGSNA, as intrinsically safe in Hazardous Locations
UL 913, 5th Ed. February 21, 1997
CAN/CSA C22.2 No. 157-92 (R2016) +Upd1 +Upd2
ANSI/TIA-4950-A, Rev. May 13, 2014
3.6V, 2250mAh;
Class I, II, III, Division 1&2, Groups A - G, T5, -25°C to +60°C
Class I, II, III, Division 1&2, Groups A - G, T3C, -25°C to +60°C;

⚠ **WARNING** Igniting an explosion could result in serious injury or death. To avoid risk:

- Ensure that intrinsically safe models are only used and stored in the appropriate classified areas consistent with the market ratings on the devices.
- Never connect electronic components or devices to Sensear headsets in a potentially explosive environment.
- Only use approved spare parts and accessories.
- Never attempt to disassemble the headsets, as this could compromise the integrity and the inherent intrinsic safety of the product. Contact Sensear's customer service for repairs. Only Sensear's authorized repair centers are allowed to repair intrinsically safe certified headsets.
- Do not use Sensear intrinsically safe headsets or accessories if they are damaged in any way.

4. WARNINGS AND SAFETY STATEMENTS:

Sensear hearing protection headsets are designed to help reduce exposure to hazardous noise. Hearing protection should be worn at all times per regional regulatory requirements. Failure to wear hearing protection or misuse of hearing protection when exposed to hazardous noise may result in hearing loss and/or injury. Reference this manual or consult a Sensear representative for assistance in proper fit and operation.

⚠ **WARNING** Sensear headsets are designed to help reduce exposure to hazardous noise. Failure to wear hearing protection or improper use of Sensear devices in hazardous noise environments may result in hearing loss, serious injury, or death.

4.1 SITUATIONAL AWARENESS AND AUDIO USE:

For best results, turn volume down to the minimum acceptable level in order to maintain optimum situational awareness while working. Listening to audio communication may reduce your ability to hear warning signals, alarms, or detect surrounding hazards.

Audio from connected two-way radios may exceed safe sound pressure levels if volume is turned to the highest settings. Adjust audio to the lowest possible acceptable level.

Failure to follow these instructions may result in serious injury or death:

- Listening to audio communication may reduce your ability to hear warning signals or detect surrounding hazards.
- Care should be taken to set volume to the lowest possible setting.

4.2 FIT, USE, AND INTERACTION WITH OTHER PPE:

Review technical data sheets on all hearing protection to ensure adequate noise reduction ratings for your work environment per local regulations.

Make sure that hearing protection is properly fit, adjusted, and maintained. Improper fit of this device could result in a reduction of the device's ability to attenuate noise. Consult this manual for proper fit instructions.

When wearing with other PPE devices such as safety glasses, respirators, helmets, or other protective equipment, ensure minimum interference with the ear cushions. Remove any other articles that may interfere with the ear cushions, such as jewelry, hair, hats, or headphones. Interference with the seal of the ear cushion could result in reduced protection from the headset.

Avoid bending or reshaping the headband, helmet mounts, or behind-the-neck frame, as this could impact the adequate force required to hold the hearing protection firmly in place.

4.3 INSPECTION, MAINTENANCE, AND HYGIENE:
Inspect the headsets prior to each use. If you identify or suspect damage to the headset, do not wear it and return the headset to Sensear or an authorized repair center. Only wear devices that appear to be in good working condition.

Earmuffs and cushions should be inspected routinely. Earmuff cushions may deteriorate with use and should be examined at frequent intervals for creaking and/or leakage. Sensear recommends replacing ear cushions and foam liners at least twice a year to ensure optimum protection and maintain consistent attenuation over time. The fitting of hygiene covers to the cushions may affect the acoustic performance of the headset.

4.4 CHEMICAL EXPOSURE AND ENVIRONMENTAL CONSIDERATIONS:

Check with the manufacturer on chemical compatibility, as some substances may adversely affect the mechanical integrity of the headset.

4.5 PACKAGING:

Packaging for all headsets are made from recycled paperboard and recyclable packing material to protect the devices during transport and storage. It is recommended that Sensear products remain in the manufacturer's packaging until ready to use.

4.6 CERTIFICATIONS, STANDARDS, AND TECHNICAL INFORMATION:

Regulatory Compliance:

- Sensear Pty, Ltd. declares that products listed in this manual comply with Directive 2014/53/EU and other applicable regulations required for the CE Mark.
- Sensear Pty, Ltd. declares that products listed in this manual comply with Regulation (EU) 2016/425.

Standards and Test Reports:

- Technical specifications are listed on page 34.
- Noise rating standards are detailed on pages 36-38, including: ANSI S3.19-1974, ANSI S12.6-2008, and AS/NZS 1270:2002.
- EN 352 passive attenuation measurements for the following standards can be found on pages 39-42: EN 352-1:2020, EN 352-3:2020, EN 352-4:2020, and EN 352-6:2020.
- EN 352 test reports are available upon request. Please contact Sensear for further information.

Certification Bodies:

- The PPE is audited and type-approved by: **BSI Group The Netherlands B.V. (Notified Body 2797),** John M. Keynesplein 9, 1066 EP Amsterdam, The Netherlands
- UKCA Approved Body: **SGS Baseefa**, 1180 Rockhead Business Park, Staden Lane, Buxton, Derbyshire SK17 9RZ

The applicable legislation for these products can be found by reviewing the Declaration of Conformity (DOC) in this document. A copy of the DOC and any additional regulatory information can be obtained from Sensear in the country of purchase or online at: https://www.sensear.com/product-declaration-of-conformities.

Only certified carrier and connected devices should be used. Contact Sensear for approved and compatible accessories.

Materials:

The materials used in the construction of the earmuff components are as follows:

EN 352-1 (Headband / Behind-the-Neck configurations):

- Headband:

Parts	Material
Top Band	POM
Band inner lay	PELD
Plastic forks	PC/PBT

- Cushions: Polyurethane foam in PVC vinyl layer

EN 352-3 (Helmet-mounted configurations):

- Forks: Tempered spring steel
- Cushions: Polyurethane foam in PVC vinyl layer

These materials have been selected to ensure durability, consistent clamping force, and long-term acoustic performance under industrial operating conditions.

4.7 NOTES ON NOISE REDUCTION RATINGS:

The Noise Reduction Rating (NRR), as specified by the U.S. EPA, is used as the measure of hearing protector noise reduction in the United States.

The Single Number Rating (SNR), as defined under applicable European standards, is used as the measure of hearing protector noise reduction in European markets.

The SLC80 rating, as defined under AS/NZS 1270, is used as the measure of hearing protector noise reduction in Australia and New Zealand.

Sensear makes no warranties as to the suitability of the NRR, SNR, or SLC80 ratings for this purpose. Users should refer to applicable regulations and guidance for determining appropriate attenuation values for their specific work environment.

5. DECLARATION OF CONFORMITIES:

Additional regulatory information can be found in the Declaration of Conformity on pages 31-33 or online at www.sensear.com/product-declaration-of-conformities.

6. CE STATEMENT:
Sensear declares that Intrinsically Safe Headset models specified in this document are compliant with essential requirements and other relevant provisions of Directive 2014/53/EU.

7. SAFETY, MAINTENANCE, AND STORAGE INSTRUCTIONS:
The SM1R has been designed such that minimal user maintenance is required. Only those parts listed on page 24 of this instruction manual are user replaceable.

NOTE: It is recommended that ear cushions are replaced a minimum of twice a year for optimum hearing protection performance. Cushions should be inspected regularly for signs of damage or wear. Cushions can be removed simply by gripping the cushion and pulling firmly to unclip from the baseplate. Replacement cushions may be pushed into the clips around the baseplate.

SPECIFIC CONDITIONS OF USE Potential Electrostatic hazard, clean with damp cloth and mild soap only.

⚠ **WARNING** The SM1R must NOT be disassembled. In the event of a malfunction the unit should be returned to Sensear Pty Ltd. Substitution of components may impair Intrinsic Safety.

⚠ **WARNING** Connection to the USB Connector located in the connector compartment of the right-hand ear-cup is not permitted. The USB is for service only. Attempting to power from this connection will result in permanent damage to the headset and potential fire and or injury.

This product may be adversely affected by certain chemical substances. Further information should be sought from the manufacturer. The headset contains replaceable cushions (Part #: SMHK0006 or SMHK0005).

The headset should be stored at room temperature (between 15°C/59°F and 25°C/77°F).

8. SAFE OPERATING TEMPERATURES:
The operating ambient temperature is -20ºC to +60ºC.

9. PRODUCT LIFETIME:
It is recommended you replace your product within 5 years of date of manufacture. The lifetime of the headset is highly dependent on environmental conditions and how the product is stored, serviced, used, and maintained.

Examples that may be indicators that the product may have reached end of life:

- Visual inspection results in defects such as cracks, loose or missing parts, and/or deformation of mechanical parts.
- Buttons missing or dislodged from earcups.
- Electrical insulation split or damaged on exposed headset cables and/or radio cables.
- Distortions in audio, including cracking, humming, insufficient audio levels, and/or deterioration in headsets' attenuation performance.

10. HEADSET ANATOMY:

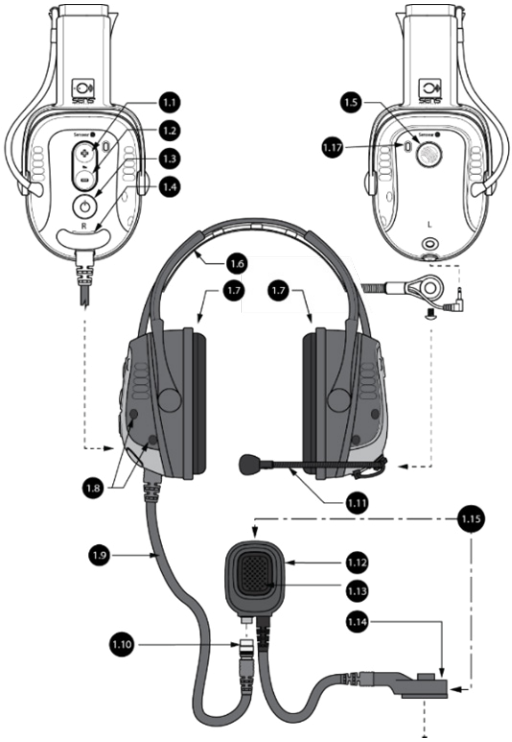


FIGURE 1

#	DESCRIPTION
1.1	Volume up button
1.2	Volume down button
1.3	Power button
1.4	Hatch cover, for programming
1.5	Multi-function button (MFB)
1.6	Headband*
1.7	Ear cushions
1.8	SENS® Microphones
1.9	Headset cable
1.10	Headset connector
1.11	Boom microphone Mount-M5 Hex screw Connector- 2.5mm audio jack
1.12	Inline PTT
1.13	Inline PTT button
1.14	Two-way radio connector (Note: these will vary depending on your two-way radio)
1.15	SRCK60xx cable assembly
1.16	To the two-way radio
1.17	LED light (one on each side of headset)

*Behind-the-Neck and Helmet Mount styles available.

11. WEARING THE HEADSET:

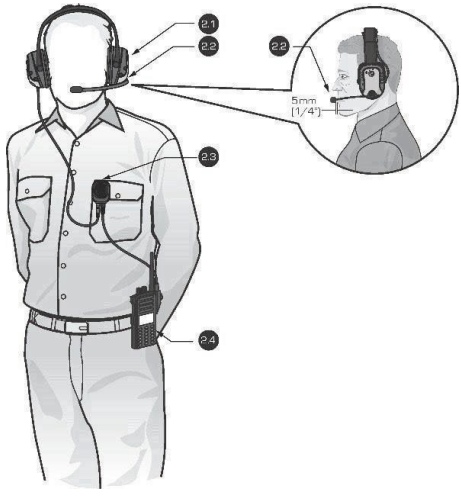


FIGURE 2

#	DESCRIPTION
2.1	Headset
2.2	Boom microphone
2.3	Inline PTT
2.4	Two-way radio

The SM1R headset is designed to be worn with the headset sealing around the ears. Specific examples of how to fit the headset around the ears are covered in the next three pages. The fit does alter slightly depending on what style of brace is used - Headband, Behind-the-Neck, or Helmet mounted.

The boom microphone should be placed approximately 5mm (1/4") in front of the mouth. Check to ensure the white dot or microphone label is facing towards you. The orientation is essential as the microphone is directional. If the microphone faces a different direction, this may lead to a reduction in transmission quality.

The inline PTT has a rotatable clip behind it to allow it to attach to the shirt/upper garment. The inline PTT must be connected to the two-way radio using the appropriate two-way radio multi-pin connector.

12. FITTING THE HEADSET:

It is recommended that the wearer should ensure that:

- The earmuffs are fitted, adjusted, and maintained in accordance with the manufacturer's instructions.
- The earmuffs are always worn in high noise conditions.

If the above recommendations are not adhered to, the protection afforded by the earmuffs could be severely impaired.

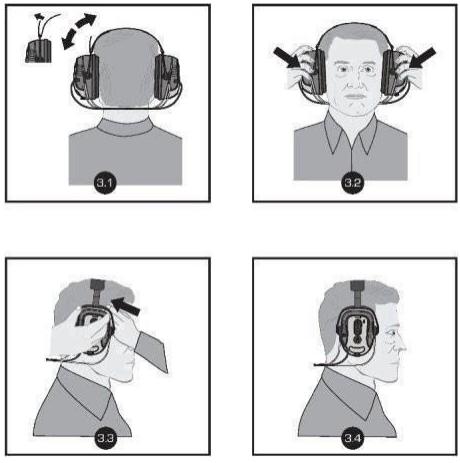


FIGURE 3 - Behind-the-Neck Mount Fitting Instructions

#	DESCRIPTION
3.1	Adjust Velcro strap so that the earmuff cups completely enclose the ears. The Velcro strap should be fitted across the top of head, and the rigged frame should go across the back of the neck.
3.2	The earmuff cushions should seal firmly against the head
3.3	For best results, remove all hair from under the ear cushion
3.4	Noise reduction will be adversely affected by anything that breaks the seal of the earmuff ear cushions

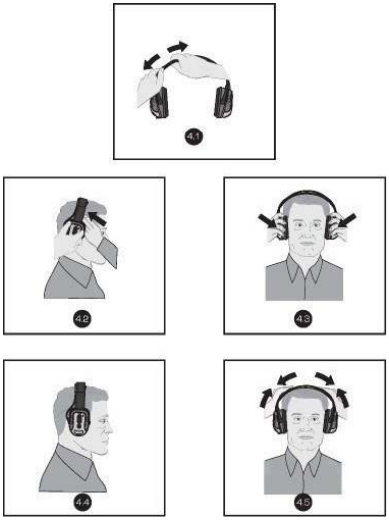
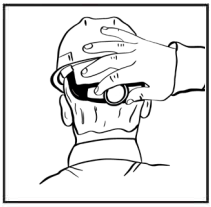


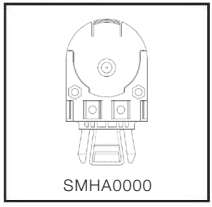
FIGURE 4 - Headband Mount Fitting Instructions

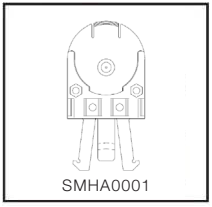
#	DESCRIPTION
4.1	Adjust the headband by pulling the center band out equally on both sides
4.2	Ensure no hair is inside the muff ear cushions
4.3	Fit the earmuffs over the ears ensuring a tight fit around the ears
4.4	Ensure the muff surrounds the ears
4.5	Press down on the headband to obtain a snug and comfortable fit

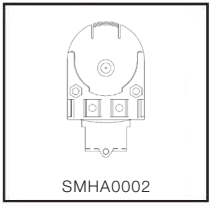
5.1

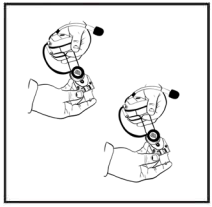


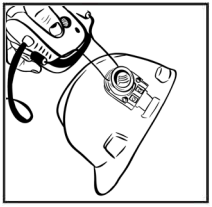
5.2

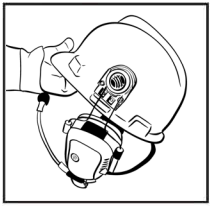




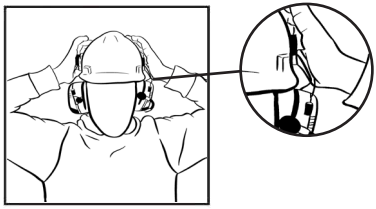


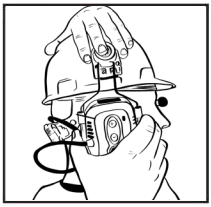






5.3





5.4

FIGURE 5 - Helmet Mount Fitting Instructions

#	DESCRIPTION
5.1	Fitting and Adjusting the Hard Hat or Helmet: Make sure the helmet sits properly on your head. Choose the correct size for your head (please refer to the helmet manufacturer's instructions for fitting). Adjust helmet ratchet to fit snug and comfortably.
5.2	Helmet Mount Adaptors: 3 different sets included (use correct adaptor for your style of helmet). Insert helmet mount headset muffs into adaptors (slide and snap in). Insert adaptors into helmet or hard hat until they snap in. Swivel headset around to face forward.
5.3	Adjusting Earmuff Fit: Snap helmet mount forks in by placing pressure on each side with your palms. Pressure should be applied at fork angle. Adjust fit on ear by bracing adaptor with one hand and pulling the earmuff down or up with your other hand. Earmuffs should fit snuggly on ears with no gaps.
5.4	Front view, side view, and back view of helmet mounted headset.

NOTE: Each helmet mount device is supplied with three different safety helmet adapters. It is the users responsibility to identify the proper attachment for the specific safety helmet that will be worn with the safety helmet. Adapters should fit snugly into the adapter slots on the safety helmets and snap into place to prevent hearing protection from moving around or becoming dislodged from the helmet. Contact Sensear for additional adapter options if the three provided adapters do not fit snugly into the accessory attachments on the required safety helmets in which the headset will be attached.

NOTE: When putting the headsets on, pushing on the earmuffs to close the headsets into the proper position will not work. Users should place their palms firmly on the bent section of the helmet fork and firmly push in on the forks until the fork connections at the helmet snap into a secure position with the cushions fitting snugly onto the users ears.

13. OPERATING THE HEADSET:

13.1 POWER ON:

1. Connect the SRCK60xx cable to the two-way radio
2. Turn the two-way radio on
3. Connect the headset cable to the SRCK60xx cable at the inline PTT
4. The headset will power up and an audible sound will be heard through the headset

13.2 POWER OFF:

1. Turn the two-way radio off, or
2. Disconnect the headset cable from the SRCK60xx cable at the inline PTT (brings audio back to the two-way radio)

13.3 SENS® MODE:

When the headset is powered up, the unit is set to "SENS® Mode." By short pressing the power button, this toggles SENS® Mode on and off. SENS® Mode allows for full situational awareness of your surroundings in addition to two-way radio or face-to-face communications.

- The Power button toggles between Quiet Mode and SENS® Mode.
- The Volume Control buttons can be used to raise or lower the audio level of the SENS® Mode
- The default mode on power up can be programmed using the Sensear programming tablet and application.

⚠ **WARNING** While utilizing the headsets in high-noise environments, SENS® Mode should remain enabled to enhance safety and ensure situational awareness. Operating the headset in Quiet Mode may reduce the ability to hear alarms, detect approaching hazards, or recognize other critical safety cues in the environment.

13.4 QUIET MODE:

By short pressing the power button while the headset is on, users can toggle between Quiet Mode and SENS® Mode.

Quiet Mode only allows audio from communication devices to pass through the headset. When in Quiet Mode, situational awareness and face-to-face communication will be reduced.

SENS® Mode	Green LED, blinks twice every 4 seconds
Quiet Mode	Green LED, blinks once every 4 seconds

14. COMMUNICATING OVER TWO-WAY RADIO:

Only approved two-way radio cables (SRCK60xx or SRCK60xx0001) may be used with SM1R and SM1R-IS models. Cables are specific to radio manufacturers make and model. For proper installation, refer to the radio compatibility chart available online at www.sensear.com/two-way-radio-cable-compatibility-tool or contact a Sensear representative.

Connecting to a Two-Way Radio via Cable:

1. Ensure that the two-way radio is off.
2. Connect the correct Sensear Intrinsically cable that is compatible with the specified two-way radio via the accessory connection provided on the two-way radio. Consult your two-way radio guide if you are unfamiliar with the location of this connection for accessories. Reference Figure 1 for the proper end of the two-way radio to connect to the two-way radio.
3. Connect the headset connecter cable to the Hirosi connection located on the inline PTT, making sure that the connector snaps securely into the locked position.
4. Turn the two-way radio on.

To Transmit Over Two-Way Radio:

- Press and hold the button located on the inline PTT (Reference Figure 1).
- Release the inline PTT button to cease transmission.
- To change the volume of the two-way radio communications, use the two-way radio's volume controls.

NOTE:

- When the headset is powered off (and disconnected from the inline PTT), the inline PTT button may not activate the two-way radio. The PTT located on the two-way radio should be used.
- When the headset is powered on, the two-way radio PTT may not activate the two-way radio.
- Audio will revert to radio when the headset connector is disconnected (dependent on radio type and compatible SRCK radio cable).

Two-Way Radio VOX:

VOX can be used on VOX-enabled two-way radios. Refer to the two-way radio documentation for the setup and use of the VOX feature. To disable VOX, you can either turn VOX off on the two-way radio or press the headset PTT once, depending on which two-way radio model you use.

15. ACCESSORIES AND SPARE PARTS:

The following accessories and spare parts may be ordered separately:

SRCK60xx	Various models, two-way radio interface cables for most popular two-way radios
SRCK60xxx001	Various models, **Intrinsically Safe** two-way radio interface cables for most popular two-way radios. Check with a rep. to ensure IS model compatibility.
SMHK0006	Earmuff hygiene kits
SMBMHK01	Headset Boom Microphone Wind Sock
SMWS0001	Headset SENS® Mics Wind Protector Kit
SMBB0000	Headset Headband Replacement
SMBE0000	Headset Behind-the-Neck Replacement
SMMK0002	Headset Helmet Mount Replacement
SMHA0000	Headset Helmet Mount Adaptor (Type A)
SMHA0001	Headset Helmet Mount Adaptor (Type B)
SMHA0002	Headset Helmet Mount Adaptor (Type C)
SMBM0002	Throat Mic for Ex Headsets
PRGTAB01	Headset Programming Tablet
HSG00003	Headset Hard Carry Case

Further information may be obtained from your Sensear representative, via the Sensear website or by emailing info@sensear.com.

16. STANDARD WARRANTY TERMS & CONDITIONS:

Sensear Pty Ltd ("SENSEAR") warrants the SENSEAR manufactured HEARING PROTECTION products ("Product") listed below to be free from defects in material and workmanship under normal use and service for a period of 12 months from the original date of purchase.

SENSEAR will at its absolute discretion repair or replace the Product where a defect in material or workmanship occurs, at no charge to the end user for parts or labor. SENSEAR reserves the right to replace the Product with the same or equivalent part or Product rather than repair it. Where a part or Product is replaced, the part or Product becomes the property of SENSEAR. SENSEAR reserves the right to use refurbished parts or Product for repair or replacement.

SENSEAR is not responsible for any damage caused to or by accessory or ancillary equipment connected or attached to the Product that is not provided by SENSEAR and is not expressly designed to operate in conjunction with the Product.

This warranty is not assignable or transferable to any other party, this warranty is extended to the original purchaser of the Product only.

This warranty is in addition to your statutory rights provided under the Trade Practices Act, or relevant legislation in your state or territory.

SENSEAR reserves the right to limit its liability to the repair, replacement, or refund of the purchase price of a Product. Under no event shall SENSEAR be liable for damages more than the original purchase price of the Product, for any loss of use, loss of time, inconvenience, loss of profits or savings, loss of revenue, commercial loss, or any other incidental, special, or consequential loss to the full extent such may be disclaimed by the law.

This Warranty Does Not Cover:

- Defect or damage resulting from use of the Product in other than its normal or intended manner.
- Defects or damage occurring from misuse, abuse, accident, corrosion, fire, liquid intrusion, or neglect, including during transportation.
- Defects or damage occurred from improper or unauthorized testing, operation, maintenance, service, repair, alteration, modification, or adjustment.
- Freight costs to the place of repair.
- Product that has been subjected to unauthorized or illegal alteration of the firmware or software in the Product.
- Cosmetic damage to the Product that does not interfere with the intended operation of the Product.
- Normal wear and tear.
- Product where the serial number has been removed or altered.
- Any consumable items, for example replaceable ear tips or earcup pads.
- Warranty claims made outside of the warranty period.

- Warranty claims made without appropriate proof of purchase bearing both the original purchase price and date.
- All other warranties, conditions, terms, representations, and undertakings whether express or implied.

How to Get Warranty Service:
If you require warranty service visit: sensear.com/support/service-and-repair.

17. TROUBLESHOOTING:

17.1 TWO-WAY RADIO:

- If the audio from your two-way radio is unclear, distorted, or intermittently cutting out, try the following:
  - Adjust the volume using the radio's controls. A 50% volume level is a good starting point.
  - Ensure the radio's battery is fully charged.
  - Move to a different location to rule out potential interference in the area.
  - Verify that the cable connection at the radio and headset are secure and properly tightened.

17.2 UNABLE TO HEAR YOUR SURROUNDINGS:

- The headset may be in Quiet Mode, or it may not be powered on.
- Press the power button to toggle between Quiet Mode and SENS® Mode.

17.3 RECEIVER CANNOT HEAR YOUR VOICE BUT CAN HEAR BACKGROUND NOISE:

- Refer to the “Wearing the Headset” section of the manual.
- Ensure the boom microphone is positioned correctly and close to your mouth for optimal voice pickup.

17.4 HEADSET HAS LOW AUDIO:

- Contact Sensear’s support team.

Sensear

SAFETY THAT SPEAKS VOLUMES

SM1R

Technical Information

English

For most recent technical information, visit sensear.com/support/technical-information.

Document Reference:	Revision:	Date:
DOC00085	8.00	Apr 28, 2026

18. FORWARD:

Product Safety and RF Exposure Compliance:
This product is designed to be used in isolation or in conjunction with a two-way radio. Before using this product with a two-way radio, read the operating instructions for safe usage contained in the Product Safety and RF Exposure booklet enclosed with the two-way radio.

19. FCC COMPLIANCE STATEMENT:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- 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.

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.

FCC ID: XKS-SM1xSR	IC: 8376A-SM1XSR
FCC ID: QOQWT32I	IC: 5123A BGTWT32I

20. DECLARATION OF CONFORMITY:

Manufacturer's Name:
Sensear Pty Ltd.

Manufacturer's Address:
4 Hehir Street, Belmont, Western Australia, 6104 Australia

This declaration of conformity is issued under the sole responsibility of the manufacturer and herewith declares that the products **SM1** series Smart Muff Headsets.

Conforms to the following directives:

2011/65/EU (L174/88-110)	RoHS Directive
(EU)2016/425 (L81/51-98)	PPE Regulation
2014/53/EU (L153/62-106)	Radio Equipment Directive

As attested by conformity with harmonized standards
RoHS:
RoHS 2 Directive 2011/65/EU

EMC and EMF Specifications:

Electromagnetic Compatibility	EN301 489-1: V2.1.1 (2017-02)
Electromagnetic Compatibility	EN301 489-17: V3.1.1 (2017-02)
Electromagnetic Compatibility	EN301 357: V2.1.1 (2017-06)
Electromagnetic Compatibility	EN300 328: V2.2.2 (2019-07)
Electromagnetic Compatibility	EN61000-6-2 Ed 3.0
Electromagnetic Compatibility	EN61000-6-3 Ed 2.1
Electromagnetic Fields	EN62479:2010

Safety Specifications:

IT Equipment	EN62368-1:2014+AC:2015

PPE Specifications:

PPE Conformance: Finnish Institute of Occupational Health, Topeliuksenkatu, 41b, FI-00250 Helsinki, Finland, Notified Body: 0403 performed the EU Type Examination (Module B) and issued the EU type-examination certificate numbers 29223RGS02 and 10409GDS01.

This product is Category III and is subject to Module D conformity to type based on quality assurance of the production process and is under surveillance of BSI Group ANZ Pty Ltd (Notified Body 2797). Certification Number: CE 717133

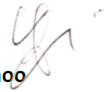
Single protection:

- EN 352-1:2020 Hearing protectors. General requirements Part 1: Ear-muffs
- EN 352-3:2020 Hearing protectors. General requirements Part 3: Ear-muffs attached to an industrial safety helmet
- EN 352-4:2020 Hearing protectors. General requirements Part 4: Level-dependent ear-muffs
- EN 352-6:2020 Hearing protectors. General requirements Part 6: Ear-muffs with electrical audio input

Dual protection:

- EN 352-6:2020 Hearing protectors. General requirements Part 6: Ear-muffs with electrical audio input
- EN 352-7:2020 Hearing protectors. General requirements Part 7: Level-dependent ear-plugs

Sensear PTY Ltd: Hehir Street, Belmont, Perth, Western Australia
Date: 27 July 2023



William Choo
Regulatory Manager

Tel: +61 8 9277 7332
Toll Free: 1-300-859-120
Web: www.sensear.com

DOC00096 SM1 Series Declaration of Conformity Rev. 3

For most recent Declaration of Conformity, please visit sensear.com/support/declaration-of-conformities.

21. TECHNICAL SPECIFICATIONS:

	Headband	Behind-the-Neck	Helmet Mount
Weight	495g (17.46 oz.)	428g (15.09 oz.)	480g (16.93 oz.)
Operating temperature	Non-Hazardous Environments: -20°C to +60°C (-4°F to 140°F) Hazardous Environments (Intrinsically Safe ratings): Class I, II, III, Division 1&2, Groups A - G, T5, Ta = -25°C to +60°C Class I, II, III, Division 1&2, Groups A - G, T3C, Ta = -25°C to +60°C Check the product label to identify the ratings applicable to the headset.		
Power	See radio cable documentation		
Housing Material	PP, ABS + TPE		
RoHS Compliant	Yes		

22. LABORATORY ATTENUATION:

The SM1R has been certified to international hearing protection standards including AS/NZS 1270:2002, ANSI S3.19-1974, ANSI S12.6-2008, EN352-1:2020, EN352-3:2020, EN352-4:2020, and EN352-6:2020.

The following passive attenuation ratings were observed (see pages 36-42):

22.1 PASSIVE ATTENUATION (ANSI S3.19-1974):

SM1R measured in accordance with ANSI S3.19 - 1974.

Headband Mount - SM1RB001

Freq. (Hz)	125	250	500	1000	2000	3150	4000	6300	8000	NRR
MV (dB)	22.1	24.4	31.1	35.1	35.8	37.0	39.9	40.7	40.7	27 dB
SD (dB)	3.1	2.4	2.0	2.5	3.2	3.0	3.3	2.7	2.9	

Behind-the-Neck Mount - SM1RE001

Freq. (Hz)	125	250	500	1000	2000	3150	4000	6300	8000	NRR
MV (dB)	18.9	22.4	28.6	33.6	33.5	35.3	37.3	38.8	37.4	24 dB
SD (dB)	3.5	3.4	2.6	2.8	2.3	3.5	4.0	2.9	3.4	

Helmet Mount - SM1RH001

Freq. (Hz)	125	250	500	1000	2000	3150	4000	6300	8000	NRR
MV (dB)	18.6	20.8	27.3	33.6	37.1	35.5	35.3	37.1	35.0	23 dB
SD (dB)	3.2	2.7	3.1	3.9	2.3	3.1	3.8	3.8	3.4	

22.2 PASSIVE ATTENUATION (ANSI S12.6-2008):

SM1R measured in accordance with ANSI S12.6 - 2008.

Headband Mount - SM1RB001

Freq. (Hz)	125	250	500	1000	2000	4000	8000	NRR (SF)
MV (dB)	21.4	21.9	29.8	33.7	35.8	37.2	38.5	27 dB
SD (dB)	3.0	2.1	1.7	2.8	1.5	1.9	2.8	
APV80	18.9	20.1	28.4	31.3	34.5	35.6	36.1	

Behind-the-Neck Mount - SM1RE001

Freq. (Hz)	125	250	500	1000	2000	4000	8000	NRR (SF)
MV (dB)	18.7	19.9	28.0	34.1	31.5	35.6	35.3	24.3 dB
SD (dB)	3.0	2.5	2.2	1.7	3.2	3.4	4.1	
APV80	16.2	17.8	26.2	32.7	28.8	32.7	31.9	

Helmet Mount - SM1RH001

Freq. (Hz)	125	250	500	1000	2000	4000	8000	NRR (SF)
MV (dB)	15.0	17.7	25.2	30.4	33.9	34.5	33.8	19.1 dB
SD (dB)	6.5	6.7	6.6	4.0	3.3	5.9	5.1	
APV80	9.5	12.1	19.7	27.0	31.1	29.5	29.5	

22.3 PASSIVE ATTENUATION (AS/NZS 1270:2002):

SM1R measured in accordance with AS/NZS 1270:2002.

Headband Mount - SM1RB001

Freq. (Hz)	125	250	500	1000	2000	4000	8000	SLC (80)
MV (dB)	20.3	21.7	30.3	33.2	35.2	36.6	37.3	31dB, Class 5
SD (dB)	4.3	3.1	2.7	3.0	2.7	2.5	3.3	
APV = MV - SD (dB)	16.0	18.6	27.6	30.2	32.5	34.1	34.0	

Behind-the-Neck Mount - SM1RE001

Freq. (Hz)	125	250	500	1000	2000	4000	8000	SLC (80)
MV (dB)	19.3	20.0	27.0	33.7	30.5	33.9	33.0	27 dB, Class 5
SD (dB)	5.1	4.1	3.7	2.4	4.5	3.8	5.2	
APV = MV - SD (dB)	14.2	15.9	23.3	31.3	26.0	30.1	27.8	

Helmet Mount - SM1RH001

Freq. (Hz)	125	250	500	1000	2000	4000	8000	SLC (80)
MV (dB)	15.6	19.1	24.7	29.7	34.0	34.5	33.4	26 dB, Class 5
SD (dB)	5.7	5.5	5.2	3.9	3.0	5.5	5.0	
APV = MV - SD (dB)	9.9	13.6	19.5	25.8	31.0	29.0	28.4	

22.4 PASSIVE ATTENUATION (EN 352-1:2020 AND EN 352-3:2020):

SM1R measured in accordance with EN 352-1:2020 and EN 352-3:2020.

Headband Mount - SM1RB001 (EN 352-1:2020)

Freq. (Hz)	125	250	500	1000	2000	4000	8000	H	M	L	SNR
MV (dB)	22.0	24.5	31.5	34.9	35.8	38.0	39.8	35 dB	30 dB	24 dB	33 dB
SD (dB)	4.8	2.6	2.3	3.1	2.5	2.1	2.7				
APV = MV - SD (dB)	17.0	21.9	29.2	31.8	33.3	35.9	37.1				

Hm (dB)	Mm (dB)	Lm (dB)	SNRm (dB)	Hs (dB)	Ms (dB)	Ls (dB)	SNRs (dB)
36.6	32.5	27	34.6	1.8	1.6	2.4	1.4

Behind-the-Neck Mount- SM1RE001 (EN 352-1:2020)

Freq. (Hz)	125	250	500	1000	2000	4000	8000	H	M	L	SNR
MV (dB)	20.0	24.5	27.7	34.0	33.3	35.3	36.1	32 dB	27 dB	21 dB	30 dB
SD (dB)	5.1	3.3	3.1	2.5	2.9	2.3	2.6				
APV = MV - SD (dB)	15.0	18.0	24.6	31.5	30.4	33.0	33.5				

Hm (dB)	Mm (dB)	Lm (dB)	SNRm (dB)	Hs (dB)	Ms (dB)	Ls (dB)	SNRs (dB)
29.7	28.1	23.3	29.1	3.2	2.4	3.3	2.3

Helmet Mount - SM1RH001

Sensear helmet-mounted earmuffs (EN 352-3:2020 configurations) have been tested and validated with the following industrial safety helmet carriers:

- MSA V-Gard® helmet systems
- 3M™ SecureFit™ X5500V series helmets

These combinations have been evaluated to ensure proper fit, clamping force, and acoustic performance.

If use with alternative helmet carriers is required, please contact Sensear for guidance or to request laboratory performance testing.

(EN 352-3:2020 - 3M SecureFit)

Freq. (Hz)	125	250	500	1000	2000	4000	8000	H	M	L	SNR
MV (dB)	20.0	22.2	28.2	33.5	36.9	38.0	37.5	34 dB	28 dB	22 dB	31 dB
SD (dB)	3.6	3.3	3.3	3.6	2.3	3.9	3.0				
APV = MV - SD (dB)	16.0	18.8	24.9	29.8	34.6	34.1	34.6				

Hm (dB)	Mm (dB)	Lm (dB)	SNRm (dB)	Hs (dB)	Ms (dB)	Ls (dB)	SNRs (dB)
35.6	32.2	28.3	34.2	2.7	1.6	2.1	1.6

(EN 352-3:2020 - MSA V-Gard)

Hm (dB)	Mm (dB)	Lm (dB)	SNRm (dB)	Hs (dB)	Ms (dB)	Ls (dB)	SNRs (dB)
30.4	27.0	22.0	28.8	2.1	2.4	2.8	2.2

Helmet Mount Performance:

The helmet-mounted configurations have been tested in accordance with EN 352-3:2020 requirements when fitted to specified helmet carriers. Performance values are valid only when the earmuffs are correctly installed and adjusted on compatible helmet systems. Improper fitting, incompatible helmet designs, or modifications may result in reduced attenuation performance. For alternative helmet integrations, contact Sensear for further evaluation and testing support.

The SM1R has level dependent facilities and the criterion levels as defined in EN 352-4:2020 are displayed below:

Model	H	M	L
SM1R	108.6 dB(A)	104.6 dB(A)	103.4 dB(A)

NOTE: The earmuff is provided with level dependent attenuation. The user should check correct operation before use. If distortion or failure is detected, the user should refer to the manufacturer's advice for maintenance.

22.5 TWO-WAY RADIO INPUT (EN 352-6:2020):

Mode	Maximum Output (dBA)	Usage Time
Stereo	76.1 dB(A)	>8 hours
Hands-free	82.8 dB(A)	6.6 hours

NOTE: The hands-free mode represents the maximum permissible exposure level corresponding to an equivalent continuous sound level of 82 dB(A) over an 8-hour reference period.

Relationship Between Input Signal and Output Level:

The relationship between input signal level and resulting sound output has been evaluated in accordance with EN 352-6:2020 requirements.

Input Signal (dB FS)	Stereo Output (dBA, Mean+SD)	Hands-free Output (dBA, Mean+SD)
-39	50.5	61.2
-34	55.6	65.8
-29	60.9	70.8
-24	65.4	75.9
-19	70.8	80.9
-14	76.1	82.8

22.6 SIZE RANGES:

⚠ **WARNING** Earmuffs complying with EN 352-1:2020 are of 'small-size range', 'Medium-size range' or 'large-size range'. 'Medium-size range' earmuffs will fit most wearers. 'Smal-size range' or 'large-size range' earmuffs are designed to fit wearers for whom 'medium-size range' earmuffs are not suitable. The SM1R headband, SM1R behind-the-neck, and SM1R helmet adapters may be adjusted for small, medium, or large size.

23. MAINTENANCE AND CLEANING:

The headset is an active hearing protector that allows audible contact with your surroundings while providing protection from harmful noise. It is recommended that the headset is fitted, adjusted, and maintained in accordance with these instructions. This headset should always be worn in noisy surroundings. The headset should be regularly inspected for serviceability.

⚠ **WARNING:**

- If these instructions are not followed the protection of the headset will be severely impaired.
- Noise reduction will be adversely affected by anything that impairs the seal of the earmuff cushions against the head, such as thick spectacle frames and balaclavas
- The reported attenuation will be obtained only if the headset is in good condition and worn as directed (Refer to AS/NZS 1269.3 for guidance).
- This product should not be used where there is a risk that the connecting cord could be caught up during use.
- This product is provided with level-dependent in-ear audio playback. 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/or replacement.

⚠ **WARNING:**

- Performance may deteriorate with battery usage. The typical period of continuous use that can be expected from the headset will depend on the two-way radio battery.
- The output of the level-dependent circuit of this hearing protector may exceed the daily limit sound level. This limit can be adjusted with a Sensear programming tablet.
- This headset has been tested and approved according to the methods described in the EN 352 series of standards.

24. CLAMPING FORCE:

The clamping force of the SM1R has been measured in accordance with AS/NZS 1270.

Model	Part #	Units	Initial measurements			Post-flex measurements		
			A	B	C	A	B	C
SM1R-Headband	SM1RB001	Newtons (N)	11.6	11.1	11.1	11.1	10.7	11.1
		Pounds (lbs)	2.6	2.5	2.5	2.5	2.4	2.5
SM1R-Behind-the-Neck	SM1RE001	N	14.2	14.7	14.2	14.2	14.7	14.2
		lbs	3.2	3.3	3.2	3.2	3.3	3.2
SM1R-Helmet Mount	SM1RH001	N	9.3	9.3	9.3	9.3	8.9	9.3

25. INTRINSICALLY SAFE CERTIFICATION - IS MODEL:

The SM1R-IS meet the following international standards for use in explosive gas environments:

- **TIA-4950-A Rev. May 13, 2014:** Requirements For Battery-Powered, Portable Land Mobile Radio Applications in Class I, II, III, Division 1, Hazardous (Classified) Locations
- **CSA C22.2 No. 157-92 (R2012) +UPD1 +UPD2:** Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations
- **UL913 5th Ed. February 21, 1997:** Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, III, Division 1, Hazardous (Classified) Locations

25.1 IS MODEL - MARKINGS:

The SM1R-IS contains the following markings:

Hazardous Location Class and Group and Temperature Class:

A scratch-resistant classification label is located at the top of the left-side ear cup on the headset.

The intrinsically safe certification is audited and type-approved by **SGS North America, Inc.:**

620 Old Peach Tree Road, Suite 100
Suwanee, GA 30024, USA

Product Model, Number Code, and Serial Number:

A product model name, number, serial label, CE mark, FCC ID, Country of Origin, and RNZ mark of registration are located at the top of the right-side earcup on the headset.

An eight-digit product code followed by a unique eight-digit serial number will be visible on the top of the outer cup and is of the form: MFP00PPPSSSSSSSS where 'MFP00PPP;' is the product number and 'SSSSSSSS' is the serial number.

29.2 IS MODEL - ENTITY PARAMETERS:

The following entity parameters are for when SM1R-IS is used with SRCK60xx0001 at the radio or intrinsically safe device end of the interface cable:

ENTITY PARAMETERS	VALUE
Vmax	8.4V
Ci	52.81µF
Li	27.49µH

30. COPYRIGHT NOTICE:

31. IMPORTANT NOTICE:

Sensear Pty. Ltd. Reserves the right to make corrections, modifications, enhancement, improvements and other changes to its products and services and to discontinue any product or service without notice. Whilst Sensear Pty Ltd makes every effort to ensure that the information in this document is correct at the time of publication, users and potential users should first check with Sensear Pty Ltd to ensure that they have received the most up-to-date documentation.

Company	Sensear Pty Ltd
Address	4 Hehir Street, Belmont, WA 6104
Country	Australia
Telephone Number	+618 9277 7332
Website	www.sensear.com
Email	admin@sensear.com

ANATEL

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

Certificate Number: Versys 2868

EAC

Waste (Disposal) of your Electronic and Electric Equipment

European Union (EU) Waste of Electrical and Electronic Equipment (WEEE) directive

The European Union's WEEE directive requires that products sold into EU countries must have the crossed-out trash bin label on the product (or the package in some cases). As defined by the WEEE directive, this cross-out trash bin label means that customers and end-users in EU countries should not dispose of electronic and electrical equipment or accessories in household waste. Customers or end-users in EU countries should contact their local equipment supplier representative or service center for information about the waste collection system in their country.

Directive de l'Union Européenne (UE) sur l'Élimination des Équipements Électriques et Électroniques (DEEE)

La directive DEEE de l'Union Européenne impose que les produits vendus dans les pays de l'UE portent la marque (éventuellement sur l'emballage) d'une poubelle sur roues barrée d'une croix. Comme la directive DEEE l'explicite, cette marque composée d'une poubelle sur roues barrée d'une croix signifie que les clients et les utilisateurs des pays de l'UE ne devraient pas inclure leurs équipements électriques et électroniques ou accessoires dans leurs déchets ménagers. Les clients ou utilisateurs des pays de l'UE devraient contacter le représentant local de leur fournisseur d'équipement ou un centre de service pour s'informer sur le système de collecte de déchets dans leur pays.

De richtlijn inzake afgedankte elektrische en elektronische apparatuur (AEEA) van de Europese Unie (EU)

De richtlijn AEEA van de Europese Unie vereist dat producten die in de landen van de EU worden verkocht (of in sommige gevallen de verpakking daarvan), moeten zijn voorzien van het etiket met een doorgekruiste vuilnisbak. Zoals bepaald door de richtlijn AEEA, betekent dit etiket met de doorgekruiste vuilnisbak dat klanten en eindgebruikers in de landen van de EU elektrische en elektronische apparatuur of toebehoren niet met het huisvuil mogen wegwerpen. Klanten en eindgebruikers binnen de EU moeten contact opnemen met hun plaatselijke leverancier of onderhoudscentrum voor informatie over het afvalinzamelsysteem in hun land.

Richtlinie über Elektro- und Elektronik-Altgeräte (WEEE) der Europäischen Union (EU)

Produkte, die in EU-Ländern auf den Markt gebracht werden, müssen mit einer durchgestrichenen Abfalltonne gekennzeichnet sein (oder in einzelnen Fällen die Verpackung). Die WEEE-Direktive definiert, dass Kunden und Endnutzer in Ländern der Europäischen Union (EU) elektronische und elektrische Geräte sowie elektronisches oder elektrisches Zubehör nicht in den Hausmüll entsorgen dürfen. Innerhalb der EU setzen Sie sich bitte mit dem örtlichen Vertreter oder Kundendienst Ihres Gerätelieferanten in Verbindung, der Ihnen Auskunft zur Altgeräteentsorgung/-abholung geben kann.

La direttiva dell'Unione Europea (EU) sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE)

La direttiva RAEE della Unione Europea richiede che i prodotti venduti nei paesi della UE debbano essere marcati con il simbolo di un contenitore di spazzatura mobile barrato sul prodotto (o in casi eccezionali sull'imballaggio). Il simbolo di un contenitore di spazzatura mobile barrato, conforme alla direttiva RAEE, significa che i clienti e i detentori finali nei paesi della UE non dovrebbero smaltire gli apparecchi o gli accessori elettronici ed elettrici con i normali rifiuti domestici. I clienti o i detentori finali nei paesi della UE dovrebbero rivolgersi al fornitore, rappresentante o centro di riparazione locale per ottenere informazioni sui sistemi predisposti nel proprio paese per la raccolta di tali apparecchi usati.

Directiva da União Europeia (UE) relativa aos Resíduos de Equipamentos Eléctricos e Electrónicos (REEE)

A Directiva REEE da União Europeia exige que os produtos vendidos em países da UE tenham a etiqueta com o símbolo do contentor do lixo barrado com uma cruz no próprio produto (ou, em determinados casos, na embalagem). Tal como definido pela Directiva REEE, este contentor do lixo barrado com uma cruz significa que os clientes e utilizadores finais nos países da UE não devem eliminar equipamentos eléctricos e electrónicos ou acessórios junto com o lixo doméstico. Os clientes ou utilizadores finais nos países da UE devem contactar o representante local do fornecedor do equipamento ou um centro de assistência para obter informações relativas ao sistema de recolha de lixo no país onde vivem.

Директива Европейского Союза (ЕС) об утилизации электрического и электронного оборудования («УЭЭО»)

Директива «УЭЭО» Европейского Союза требует, чтобы на изделиях, продаваемых в странах ЕС (а в отдельных случаях — на их упаковке), была нанесена маркировка в виде перечёркнутого мусорного контейнера. Как установлено в директиве «УЭЭО», такая маркировка в виде перечёркнутого мусорного контейнера означает, что покупатели и конечные пользователи не должны выбрасывать электронное и электрическое оборудование или приборы в бытовой мусор. Покупателям и конечным пользователям в странах ЕС следует обращаться к местным представителям поставщиков оборудования или в сервисные центры для получения информации о системе сбора отходов в их стране.

La directiva de la Unión Europea (UE) sobre Residuos de Aparatos Eléctricos y Electrónicos (RAEE)

La directiva RAEE de la Unión Europea requiere que los productos vendidos en los países de la UE sean rotulados mediante el símbolo de un contenedor de basura tachado sobre el producto (o en algunos casos sobre el envase). Conforme con la directiva RAEE, el símbolo del contenedor de basura tachado significa que los clientes y usuarios finales en los países de la UE no deberían disponer los aparatos eléctricos o electrónicos ni ninguno de sus componentes junto a la basura doméstica. Los clientes o usuarios finales en los países de la UE deben entrar en contacto con el centro de servicio o proveedores del equipo para obtener información acerca del sistema de recolección en su país.

Printed in Australia