

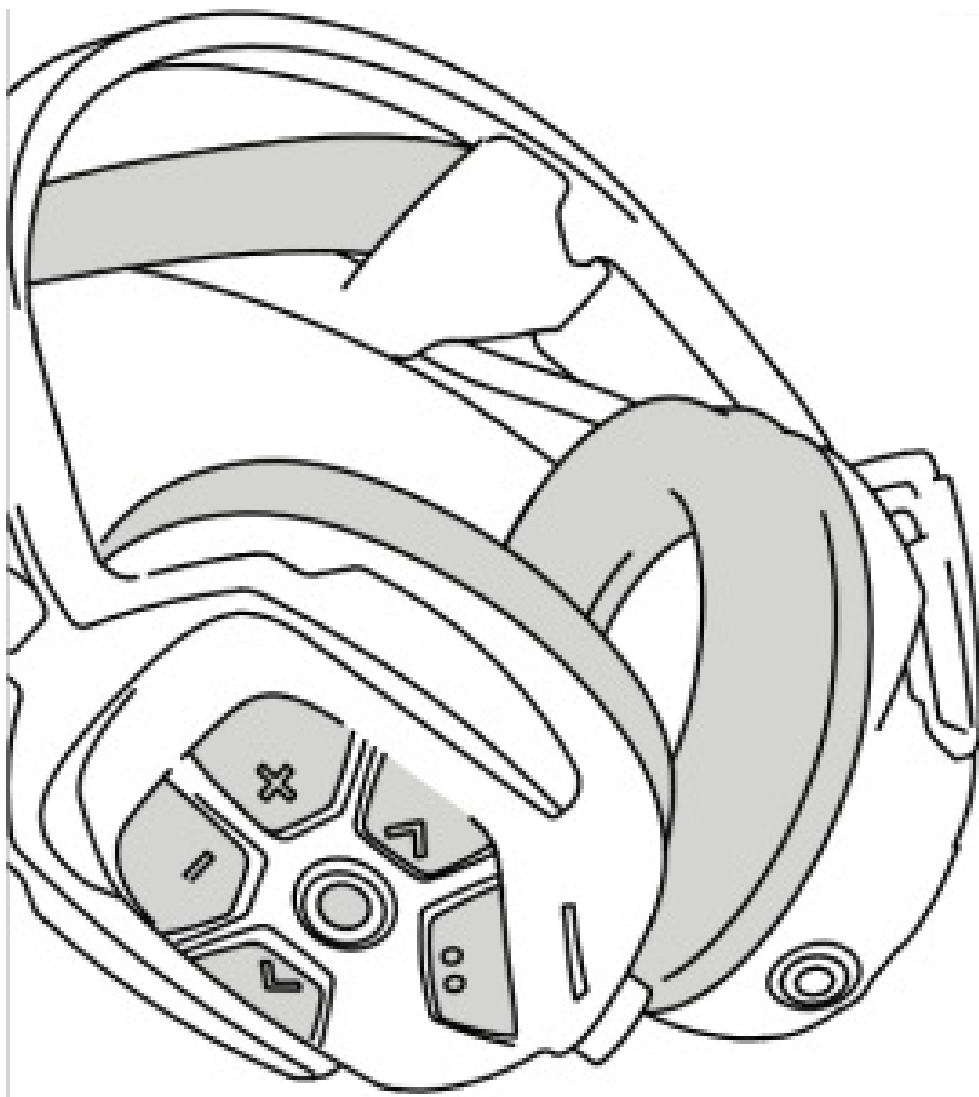


## SHARP B093BJND7L Hearing Protector with Bluetooth Instruction Manual

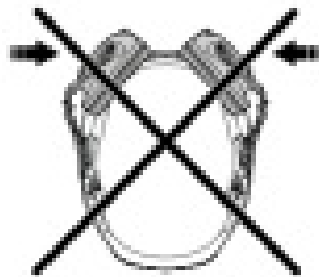
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# SHARP

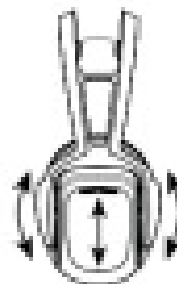
Hearing Protector  
with Bluetooth ® ,  
FM Radio and ambient sound



**Fig 1**



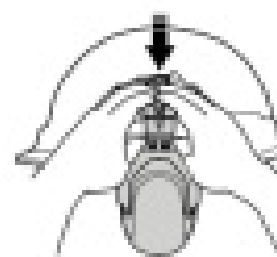
**Fig 2**



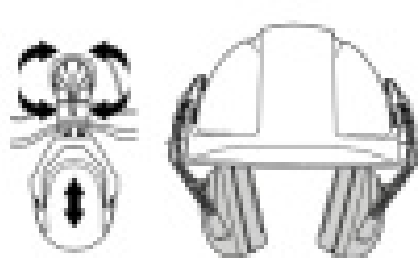
**Fig 3**



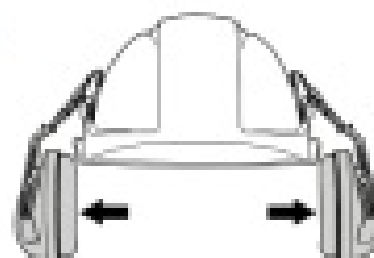
**Fig 4**

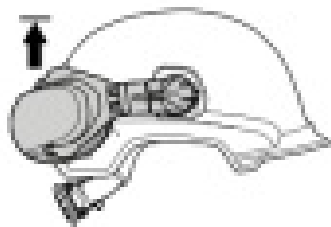
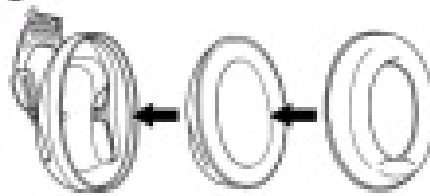
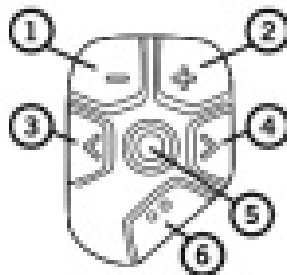


**Fig 5**



**Fig 6**



**Fig 7****Fig 8****Fig 9****Fig 10****Fig 11**

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## INTRODUCTION

Sordin SHARP TM is a hearing protector with Bluetooth®, FM Radio, and ambient sound. The product is designed to protect against harmful noise. The model Sordin SHARP-1 is a hearing protector with a headband and the model Sordin SHARP-2 is a hearing protector for a helmet.

### Key features

- Bluetooth® with multipoint technology for connection to one or two devices for communication and streaming.
- FM radio with built-in antenna and digital station scan with the ability to store favorite stations.
- Ambient sound listening and Push-To-Listen for face-to-face communication with reduction of harmful noise.
- Built-in microphones and the possibility to attach a noise-canceling boom microphone for noisy environments.

## COMPLIANCE AND APPROVALS

The products meet the Essential Health and Safety Requirements as laid out in Annex II and conform with quality assurance of the production process, module D, laid out in annex VIII of the PPE-regulation (EU) 2016/425. CE markings are in accordance with EN 352-1:2002 and EN 352-3:2002; EN 352-4:2001/ A1:2005 and EN 352-8:2008. The products are approved to modules B and D by BSI (NB 2797), BSI Group The Netherlands B.V. Say

Building, John M. Keynesplein 9, 1066 EP Amsterdam, The Netherlands.

The product also complies with,

Directive 2001/95/EC General Product Safety.

IEC 62368-1 (EN 62368-1+A11), UL 62368-1:2014 Ed.2 and CSA C22.2#62368-1:2014 Ed.2

Audio/Video, information and communication technology equipment – Part 1: Safety Requirements 2014/53/EU  
Radio Equipment Directive RED

ETSI EN 300 328 V2.1.1, ETSI EN 301 489-1 V2.2.0 (Draft),

EN 301 489-17 V3.2.0 (Draft) 2006/66/EC Battery Directive

The battery is certified according to IEC62133 edition 2 and UN38.3.

Directive 2011/65/EU RoHS2 Restriction of hazardous substances.

Further information and the full text of the EU declaration of conformity is available at the following internet address: [www.sordin.com](http://www.sordin.com); search for SHARP.

#### **Registered trademarks**

The Bluetooth ® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Sordin AB is under license.

## **SAFETY**

### **General safety**



**WARNING!**

- Use and save these instructions.
- The protection afforded by earmuffs will be severely impaired if you do not follow the instructions in this operator's manual.
- The wearer should ensure that,
  - the earmuffs are fitted, adjusted, and maintained in accordance with this manual.
  - the earmuffs are worn at all times in noisy environments.
  - the earmuffs are regularly inspected for serviceability
- This hearing protector 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.
- Performance may deteriorate with battery usage. The typical period of continuous use that can be expected from the hearing protector battery varies depending on the mode of use and volume output. The typical period of continuous use in ambient mode with mid-volume is 36 hours.
- The output level-dependent circuit of this hearing protector may exceed the external sound level.
- This hearing protector is provided with an entertainment audio facility. The entertainment (FM Radio and Bluetooth streaming) audio signal sound pressure level is limited to 82dB(A) effective to the ear.
- The audibility of warning signals at a specific workplace may be impaired while using the entertainment facility.
- This product may be adversely affected by certain chemical substances. Further information should be sought from the manufacturer.
- Clean the product regularly. Use a cloth with water and soap. Do not wash or put fully into the water.
- Hearing protectors, and in particular, cushions may deteriorate with use and should be examined at frequent intervals for cracking and leakage, for example.
- The fitting of hygiene covers to the cushions may affect the acoustic performance of the hearing protectors.
- The product contains a battery and electrical components that may cause ignition inflammable or explosive atmospheres. Do not use in environments where sparks may cause a fire or explosion.

- Do not put the product in storage at temperatures above +55°C and below -20°C.
- Only use the product between temperatures -20°C and +55°C.
- Only charge the product between temperatures 0°C and +40°C.
- Ensure that the product is not damaged during transportation and use.
- Do not press the earmuffs against the helmet shell as this can cause cracks around the side of the helmet.
- Do not change or remove parts of the product. Only do changes that are given in this manual. All service and repair work must be done by an approved service workshop.
- Make sure that the charger cable and charger used, fulfill country-specific regulations. Do not leave the hearing protector to charge unattended.
- Only use Sordin's original spare parts.
- Never use the earmuffs longer than 10 years from the manufacturing date stated on the packaging.
- Dispose of the product in accordance with national legislation.

## OPERATION

### Introduction



#### WARNING!

Before you operate the product, you must read and understand the safety chapter.

Before following the fitting instructions, move your hair aside and remove any objects that could affect the acoustic seal. Make sure that the sealing rings are tight around your ears before you operate the product.

**To put the hearing protectors in operating position (Sordin SHARP-1):** Place the cups over the ears and adjust the headband and cups until they are in a comfortable position. Adjust the earmuffs until they are tight around your ears and tight against your head. (Fig.2)

**To assemble the hearing protectors to a helmet (Sordin SHARP-2):** Lift the earmuffs out and up until they lock in the standby position. (Fig.3). Put the helmet attachment in the slot on the helmet. (Fig.4) For further tips on cable routing, visit [www.sordin.com](http://www.sordin.com); search for SHARP.

**To put the hearing protectors in operating position (Sordin SHARP-2):** Put the helmet on your head.

Adjust the earmuffs until they are tight around your ears and tight against your head. (Fig.5)

**To put the hearing protectors in standby position (Sordin SHARP-2):** Lift the earmuffs out and up until they lock in the standby position. (Fig.6) **To put the hearing protectors in parking position (Sordin SHARP-2):** Put the earmuffs in the standby position. Turn the hearing protectors rearward along the side of the helmet until they lock in the parking position. (Fig. 7)

Do not press the earmuffs against the helmet shell as this can cause cracks around the side of the helmet. (Fig. 1)

**To attach/remove optional head padding (SHARP-1):** The optional head padding can be attached/ removed. Open the velcro flap on the padding to remove it from the headband.

The hearing protector is equipped with integrated microphones. A boom microphone can be used in noisy environments to decrease the noise during phone calls and two-way radio calls.

**To assemble the boom microphone:** Make sure that the hearing protector is off and connect the boom microphone to the microphone input on the right earmuff. (Fig. 9)

**To charge the battery:** Connect the charger cable to the charger jack on the left earmuff. (Fig. 10) Connect the USB connector on the charger cable to a standard USB charger.

Voice feedback: BEEP sound (Informs that the hearing protector is charging).

## FUNCTIONS

### Switch ON / OFF

Press and hold the multifunction [O] button (Fig. 11.5) for 3 seconds until voice feedback "POWER ON". Voice feedback: – POWER ON (Informs that the hearing protector is ON)

– BATTERY LEVEL (Informs about battery charging level: FULL 75%; 50%; 25% or LOW)

- RADIO (Informs that the hearing protector is in FM Radio mode)
- CONNECTED (Informs that a phone or two-way radio is connected via Bluetooth)

Press and hold the multifunction [O] button (Fig. 11.5) for 3 seconds until voice feedback “POWER OFF”. Voice feedback: – POWER OFF (Informs that the hearing protector turns OFF)

**NOTICE!** If no function button is activated for 2 hours, the hearing protector goes to sleep mode and prepares to turn off. Press any button within 10 seconds to return to the last mode. This is a battery-saving function.

## **Change MODE**

Press and release the multifunction [O] button (Fig. 11.5) for 1 second to switch between FM Radio mode, Headset mode and Ambient mode. Voice feedback:

- RADIO (Informs that the hearing protector is in FM Radio mode)
- HEADSET (Informs that the hearing protector is in Headset mode)
- AMBIENT (Informs that the hearing protector is in Ambient mode)

## **Adjust Volume**

Click the [-] button (11.1) to adjust volume down or the [+] button (11.2) to adjust volume up. Voice feedback: – BEEP sound (Informs that the min or max volume level is reached)

**NOTICE!** Each function mode, Radio, Headset, Ambient, and Phone call has individual volume. The chosen volume in the Ambient mode will follow the mixed ambient sound in the other modes. The ambient sound is level-dependent to protect from harmful noise.

## **Push to Listen (switch on/off ambient sound)**

In RADIO and HEADSET mode, click the [..] button to switch on/off the ambient sound.

## **Bluetooth pairing**

The hearing protector can be paired with Bluetooth® units that support A2DP, HFP, and HSP profiles. Select Headset mode (See Change MODE). Press and hold the multifunction [O] button (Fig. 11.5) and [>] button (Fig. 11.4) for 2 seconds to activate pairing.

Voice feedback: – PAIRING (Informs that the hearing protector is in pairing mode)

Activate Bluetooth function on the phone or two-way radio and search for new units.

Select “Sordin SHARP”. If the phone requires a password, enter 0000

Voice feedback: – PAIRING SUCCESSFUL (Informs that the hearing protector is paired and connected)

Once the Bluetooth pairing function is activated it will automatically establish a connection next time it is used.

Voice feedback: – CONNECTED (Informs that the hearing protector is connected to a paired phone or two-way radio)

The hearing protector supports Multipoint technology and can be paired with two Bluetooth® devices at the same time. It controls and prioritizes the devices in different ways depending on the type of devices and their activities.

## **Answer/End phone call**

To manage phone calls, the headset must be paired with a mobile phone (see Bluetooth pairing).

Incoming phone calls are indicated with a ring tone. Click the [..] button (Fig. 11.6) to answer and end a phone call. A call can be rejected by pressing and releasing the multifunction [O] button (Fig. 11.5) for 1 second.

## **Two-way radio PTT (Push to Talk)**

To manage communication, the hearing protector must be paired with a two-way radio (see Bluetooth pairing).

Hold [..] button (Fig. 11.6) to transmit over two-way radio.

## **Paus/Play track**

Select Headset mode to stream music from the phone (see Change Mode).

When streaming from a music app, click the multifunction [O] button (Fig. 11.5) to Paus/Play track.

## **Toggle tracks**

When streaming from a music app, click the [>] button (Fig. 11.4) or [<] button (Fig. 11.3) to toggle between tracks.

## **Scan radio station**

Click the [>] button (Fig. 11.4) or [<] button (Fig. 11.3) to activate frequency scan up or down. Voice feedback: – BEEP sound (Informs that the min or max frequency is reached)

## **Save radio station**

The FM Radio mode has 5 preset slots where favorite radio stations can be saved. Scan to the desired station (see Scan radio station). Press and hold the multifunction [O] button (Fig. 11.5) and [>] button (Fig. 11.4) for 2 seconds until voice feedback “SAVED”, to save the station in the current slot. This will overwrite any previously saved in the slot.

Voice feedback: – SAVED (Informs that the station is saved in the current slot). To save a station in the next slot, toggle to the next slot (see Toggle saved radio stations) and repeat the process above.

### **Toggle saved radio stations**

The FM Radio mode has 5 preset slots where favorite radio stations can be saved. Press and release the [>] button (Fig. 11.4) or [<] button (Fig. 11.3) for 1 second to toggle between slots. Voice feedback: – PRE-SET 1-5 (Informs which pre-set slot is active).

## **MAINTENANCE**



### **WARNING!**

Do not wash or put fully into the water. Clean the product regularly. Use a cloth with water and soap and dry them carefully. Check the condition of the sealing rings and the foam rubber inserts before each use. Replace the sealing rings and the foam rubber inserts 1 time every 6 months or more frequently if it is necessary. Use original spare parts (Fig. 8 and Table 3). See Fig. 8 for how to replace the hygiene kits. Visit [www.sordin.com](http://www.sordin.com) for ordering information.

## **TRANSPORTATION, STORAGE, AND DISPOSAL**

### **Transportation and storage**

When the hearing protector is not in use, store it in a dry and clean place at normal room temperature and do not place it in direct sunlight.

- Make sure that the sealing rings are not compressed.
- Make sure that the headband is not stretched (Sordin SHARP-1).
- When the helmet is not in use, put the earmuffs in the operating position.

**NOTICE!** If the hearing protector is stored for a prolonged period, charge every 4 weeks to maintain the battery.

**NOTICE!** Do not press the cups onto the helmet shell as this will lock the spring in the earmuff arm, and damage the attachment slots on the side of the helmet (Sordin SHARP-2) (Fig. 1).

### **Disposal**

Follow national regulations for disposal of the product.

## **ACCESSORIES**

### **Approved sizes (Sordin SHARP-1 and SHARP-1B)**

Over-the-head earmuff size ranges (Sordin SHARP-1): Small-Medium-Large.

### **Approved helmets (Sordin SHARP-2 and SHARP-2B)**

These earmuffs shall be fitted to and used only with, the industrial safety helmets as listed in Table 2.

The adapter type number is marked on the adapter. For an updated list of approved helmet combinations, visit [www.sordin.com](http://www.sordin.com).



### **WARNING!**

Helmet mounted hearing protectors complying with EN 352-3 are of 'medium size range' or 'small size range' or 'large size range'. 'Medium size range' helmet-mounted hearing protectors will fit the majority of wearers. 'Small size range' or 'large size range' helmet-mounted hearing protectors are designed to fit wearers for whom 'medium size range' helmet-mounted earmuffs are not suitable.

## **ATTENUATION DATA (Table 1)**

Responsible manufacturer: Sordin AB, Rörläggavägen 8, SE-331 53 Värnamo, Sweden, tel: +46-370-69 35 50.

f = Frequencies at which attenuation is measured

Mf = Mean value

sf = Standard deviation APV (Mf –sf ) = Assumed Protection Value

H = High frequency attenuation value (predicted noise level reduction for noise where LC –LA = –2 dB)

M = Medium frequency attenuation value (predicted noise level reduction for noise where LC –LA = +2 dB)

L = Low frequency attenuation value (predicted noise level reduction for noise where LC –LA = +10 dB)

SNR = Single Number Rating (the value that is subtracted from the measured C-weighted sound pressure level, LC , in order to estimate the effective A-weighted sound level inside the ear) W = Weight (gram)

#### CRITERION LEVELS (Table 4)

Typical values in accordance with EN 352-4:2001/A1:2005, appendix A, with the volume set to maximum.

H = High frequency sound pressure level (LC –LA = 1.2 dB),

M = Medium frequency sound pressure level (LC –LA = 2 dB),

L = Low frequency sound pressure level (LC –LA = 6 dB).

#### MATERIALS

PARTS	MATERIALS
Cups 12	ABS, TPE
Attenuation foam 12	PU foam
Sealing rings 12	ABS, PP, TPE, PU foam
Gel sealing rings 182B	ABS, PVC-foil, Silicone gel
Headband 1	POM
Cup supporting arm 2	PA

Support band 1	TOP
Adapter, Holder 2	PA
Spring cover 2	PP
Spring 2	Stainless steel
Screws 12	Stainless steel
Headband padding 3	PA, TPU, PE foam

1. Sordin SHARP-1 (Headband), 2 Sordin SHARP-2 (Helmet mounted)

1B Sordin SHARP-1 (Headband), 2B Sordin SHARP-2 (Helmet mounted), 3 Optional Accessory

#### TABLE 1 – Technical Data

##### Sordin SHARP-1 (Headband)

f (Hz)	125	250	500	1000	2000	4000	8000
M <sub>f</sub> (dB)	17.2	17.9	24.6	30.8	35.9	43.9	42.6
s <sub>f</sub> (dB)	2.3	2.4	2.1	2.4	2.5	3.8	2.3
APV (d8)	14.9	15.5	22.6	28.3	33.4	40.1	40.3

H = 35 dB, M = 26 dB, L = 19 dB, SNR = 29 dB

W = 387 g



**Sordin SHARP-1B (Headband with gel sealing rings)**

<b>f (Hz)</b>	<b>125</b>	<b>250</b>	<b>500</b>	<b>1000</b>	<b>2000</b>	<b>4000</b>	<b>8000</b>
<b>M<sub>f</sub> (dB)</b>	16.6	18.0	25.3	31.3	37.0	44.9	44.9
<b>S<sub>f</sub>(dB)</b>	2.9	1.7	2.4	2.7	2.7	3.7	2.8
<b>APV (dB)</b>	13.7	16.4	22.9	28.6	34.4	41.2	42.1

**H = 35 dB, M = 26 dB, L = 19 dB, SNR = 29 dB**  
**W = 428 g**

**Sordin SHARP-2 (Helmet Mounted)**

<b>f (Hz)</b>	<b>125</b>	<b>250</b>	<b>500</b>	<b>1000</b>	<b>2000</b>	<b>4000</b>	<b>8000</b>
<b>M<sub>f</sub> (dB)</b>	18.8	18.7	24.5	30.0	36.2	45.0	40.8
<b>s<sub>f</sub>(dB)</b>	3.0	3.2	3.1	2.9	2.6	4.7	4.9
<b>APV (dB)</b>	15.8	15.4	21.4	27.1	33.6	40.4	36.0

**H = 33 dB, M = 25 dB, L = 19 dB, SNR = 28 dB**  
**W = 387 g**

**Sordin SHARP-2B (Helmet Mounted with gel sealing rings)**

<b>f (Hz)</b>	<b>125</b>	<b>250</b>	<b>500</b>	<b>1000</b>	<b>2000</b>	<b>4000</b>	<b>8000</b>
<b>M<sub>t</sub> (dB)</b>	17.1	17.5	25.5	31.9	36.5	47.2	46.7
<b>s<sub>f</sub> WM</b>	3.4	2.7	3.1	3.3	3.0	2.7	2.8
<b>APV (dB)</b>	13.7	14.8	22.4	28.7	33.5	44.5	43.9

**TABLE 2 – Approved Helmet combinations (SHARP-2 and SHARP-2B)**  
For an updated list of approved helmet combinations, visit [www.sordin.com](http://www.sordin.com)

<b>Helmet Model</b>	<b>Adapter Type Number</b>	<b>Approved sizes</b>
Petzl Vertex	20	5, <b>M</b> , L
Petzl Strato	20	5, <b>M</b> , L
Kask Zenith	20	5, <b>M</b> , L
MSA V-Gard 1-11	20	5, M, L
3M SecureFit X5000VE	20	5, M, L
JSP EVO Vista	20	5, <b>M</b> , L

**TABLE 3 – Hygiene Kit**

Type	Part Number
Sordin SHARP-1 and Sordin SHARP-2	60050-S
Sordin SHARP-1 and Sordin SHARP-2 (Gel sealing rings)	60051-S

**TABLE 4 – Criterion Levels**

Type	Criterion Levels dB(A)		
	H	M	L
Sordin SHARP-1 (Headband)	116.6	105.5	97.1
Sordin SHARP-1 (Helmet Mounted)	116.3	104.9	95.3


# SORDIN

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## *The Good Silence*

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 Product of Sweden  
[WWW.SORDIN.COM](http://WWW.SORDIN.COM)

**Documents / Resources**

 <p>Hearing Protector with Bluetooth, FM Radio and ambient sound</p> <p>SHARP®</p>	<p><a href="#">SHARP B093BJND7L Hearing Protector with Bluetooth</a> [pdf] Instruction Manual</p> <p>B093BJND7L, Hearing Protector with Bluetooth</p>
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