

SM1R

HEADSET INFORMATION

ENGLISH

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.

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.

SPECIFICATIONS

SPECIFICATION	SM1R	
Weight	400g	14.1oz
Operational Temperature	-25°C to +60°C	-13°F to 140°F
Power consumption	See radio cable documentation	
Housing Material	PC, ABS + TPE	
RoHS Compliant	Yes	

NRR AND SLC80

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, EN352-3, EN352-4, and EN352-6. The following passive attenuation ratings were observed:

PASSIVE ATTENUATION (ANSI S3.19 -1974)

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

Headband mount-SM1RB001

<i>Frequency (Hz)</i>	125	250	500	1000	2000	3150	4000	6300	8000	<i>NRR</i>
Mean attenuation (dB)	22.1	24.4	31.1	35.1	35.8	37.0	39.9	40.7	40.7	27 dB
Standard deviation (dB)	3.1	2.4	2.0	2.5	3.2	3.0	3.3	2.7	2.9	

Behind the neck mount-SM1RE001

<i>Frequency (Hz)</i>	125	250	500	1000	2000	3150	4000	6300	8000	<i>NRR</i>
Mean attenuation (dB)	18.9	22.4	28.6	33.6	33.5	35.3	37.3	38.8	37.4	24 dB
Standard deviation (dB)	3.5	3.4	2.6	2.8	2.3	3.5	4.0	2.9	3.4	

Helmet mount-SM1RH001

<i>Frequency (Hz)</i>	125	250	500	1000	2000	3150	4000	6300	8000	<i>NRR</i>
Mean attenuation (dB)	18.6	20.8	27.3	33.6	37.1	35.5	35.3	37.1	35.0	23 dB
Standard deviation (dB)	3.2	2.7	3.1	3.9	2.3	3.1	3.8	3.8	3.4	

PASSIVE ATTENUATION (ANSI S12.6 - 2008)

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

Headband mount-SM1RB001

<i>Frequency (Hz)</i>	125	250	500	1000	2000	4000	8000	<i>NRR (SF)</i>
Mean attenuation (dB)	21.4	21.9	29.8	33.7	35.8	37.2	38.5	27 dB
Standard deviation (dB)	3.0	2.1	1.7	2.8	1.5	1.9	2.8	
APV 80	18.9	20.1	28.4	31.3	34.5	35.6	36.1	

Behind the neck mount-SM1RE001

<i>Frequency (Hz)</i>	125	250	500	1000	2000	4000	8000	<i>NRR (SF)</i>
Mean attenuation (dB)	18.7	19.9	28.0	34.1	31.5	35.6	35.3	24.3 dB
Standard deviation (dB)	3.0	2.5	2.2	1.7	3.2	3.4	4.1	
APV 80	16.2	17.8	26.2	32.7	28.8	32.7	31.9	

Helmet mount-SM1RH001

<i>Frequency (Hz)</i>	125	250	500	1000	2000	4000	8000	<i>NRR (SF)</i>
Mean attenuation (dB)	15.0	17.7	25.2	30.4	33.9	34.5	33.8	19.1 dB
Standard deviation (dB)	6.5	6.7	6.6	4.0	3.3	5.9	5.1	
APV 80	9.5	12.1	19.7	27.0	31.1	29.5	29.5	

PASSIVE ATTENUATION (AS/NZS 1270:2002)

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

Headband mount-SM1RB001

<i>Frequency (Hz)</i>	<i>125</i>	<i>250</i>	<i>500</i>	<i>1000</i>	<i>2000</i>	<i>4000</i>	<i>8000</i>	<i>SLC (80)</i>
Mean attenuation (dB)	20.3	21.7	30.3	33.2	35.2	36.6	37.3	31dB, Class 5
Standard deviation (dB)	4.3	3.1	2.7	3.0	2.7	2.5	3.3	
Mean attenuation – Standard deviation (dB)	16.0	18.6	27.6	30.2	32.5	34.1	34.0	

Behind the neck mount-SM1RE001

<i>Frequency (Hz)</i>	<i>125</i>	<i>250</i>	<i>500</i>	<i>1000</i>	<i>2000</i>	<i>4000</i>	<i>8000</i>	<i>SLC (80)</i>
Mean attenuation (dB)	19.3	20.0	27.0	33.7	30.5	33.9	33.0	27 dB, Class 5
Standard deviation (dB)	5.1	4.1	3.7	2.4	4.5	3.8	5.2	
Mean attenuation – Standard deviation (dB)	14.2	15.9	23.3	31.3	26.0	30.1	27.8	

Helmet mount-SM1RH001

<i>Frequency (Hz)</i>	<i>125</i>	<i>250</i>	<i>500</i>	<i>1000</i>	<i>2000</i>	<i>4000</i>	<i>8000</i>	<i>SLC (80)</i>
Mean attenuation (dB)	15.6	19.1	24.7	29.7	34.0	34.5	33.4	26 dB, Class 5
Standard deviation (dB)	5.7	5.5	5.2	3.9	3.0	5.5	5.0	
Mean attenuation – Standard deviation (dB)	9.9	13.6	19.5	25.8	31.0	29.0	28.4	

PASSIVE ATTENUATION (EN352-1 AND EN352-3)

SM1R measured in accordance with EN352-1 and EN352-3.

Headband mount-SM1RB001 (EN352-1)

Frequency (Hz)	125	250	500	1000	2000	4000	8000	H	M	L	SNR
								(dB)			
Mean attenuation (dB)	22.5	24.5	31.5	34.9	35.8	38.0	39.8	35	30	24	33
Standard deviation (dB)	4.8	2.6	2.3	3.1	2.5	2.1	2.7				
Mean attenuation – Standard deviation (dB)	17.7	21.9	29.2	31.8	33.3	35.9	37.1				

Behind the neck mount-SM1RE001 (EN352-1)

Frequency (Hz)	125	250	500	1000	2000	4000	8000	H	M	L	SNR
								(dB)			
Mean attenuation (dB)	20.7	21.3	27.7	34.0	33.3	35.3	36.1	32	27	21	30
Standard deviation (dB)	5.1	3.3	3.1	2.5	2.9	2.3	2.6				
Mean attenuation – Standard deviation (dB)	15.6	18.0	24.6	31.5	30.4	33.0	33.5				

Helmet mount-SM1RH001 (EN352-3)

Frequency (Hz)	125	250	500	1000	2000	4000	8000	H	M	L	SNR
								(dB)			
Mean attenuation (dB)	20.4	22.2	28.2	33.5	36.9	38.0	37.5	34	28	22	31
Standard deviation (dB)	3.6	3.3	3.3	3.6	2.3	3.9	3.0				
Mean attenuation – Standard deviation (dB)	16.9	18.8	24.9	29.8	34.6	34.1	34.6				

The SM1R has level dependent facilities and the criterion levels as defined in EN352-4 are displayed below:

<i>Model</i>	<i>H</i>	<i>M</i>	<i>L</i>
	<i>(dBA)</i>		
SM1R	108.6	104.6	103.4

TWO-WAY RADIO INPUT (EN352-6)

The electrical input level for which the mean plus one standard deviation A-weighted diffused-field related sound pressure level is equal to 82 dB(A) is an RMS voltage $U = 108 \text{ mV}$.

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 be worn at all times 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 EN352 series of standards.

SIZE RANGES

Warning- Ear-muffs complying with EN352-1 are of 'small size range', 'medium size range' or 'large size range'. 'Medium size range' ear-muffs will fit the majority of wearers. 'Small size range' or 'large size range' ear-muffs are designed to fit wearers for whom 'medium size range' ear-muffs are not suitable. The SM1R headband, SM1R behind-the-neck and SM1R helmet adapters may be adjusted for small, medium or large size.

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 mount	SM1RB001	Newton (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 mount	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
		lbs	2.1	2.1	2.1	2.1	2.0	2.1

MAINTENANCE AND STORAGE OF YOUR HEADSET

This product may be adversely affected by certain chemical substances. Further information should be sought from the manufacturer.

The headset contains replaceable cushions (Part #: SMHK0000). Cushions are recommended to be replaced every 3-6 months to maintain the appropriate hearing protection that the product is certified to. 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.

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

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ACCESSORIES AND SPARE PARTS

SRCK6xxx	Various models, two-way radio interface cables for most popular two way radios.
SMHK0006	Ear muff hygiene kits
SMBE0000	Behind-the-neck replacement band
SMBB0000	Headband replacement band
SMHA0001	SM1 Helmet Adaptor – MSA Vguard
SMHA0002	SM1 Helmet Adaptor – Protector Allsafe
SMHA0003	SM1 Helmet Adaptor – Protector Tuffmaster
SMHA0004	SM1 Helmet Adaptor – Unisafe Unilite
SMBM0001	Replacement boom microphone
SMAP0001	Cooling Pads

DECLARATION OF CONFORMITY

We, the undersigned,

Company	Sensear Pty Ltd
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Declare that:

Model SM1R in accordance with the following directives:

- 89/686/EEC
- 2014/53/EU
- 2006/95/EC
- 2004/108/EC
- 2006/42/EC

Has been designed and manufactured to the following specifications:

- ETSI EN 352-1, EN352-3, EN352-4 and EN 352-6
- ETSI EN 301 489
- EN 55022
- EN 60950

INTRINSICALLY SAFE CERTIFICATION

The ISSM1R & SM1RDW 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

MARKINGS

The IS SM1R & SM1RDW contain the following markings:

Manufacturer's name, Hazardous location class and group and temperature class



ENTITY PARAMETERS

The entity parameters for the IS SM1R & SM1RDW when used with the 2-way radio cables (IS SM1R Interface Cable SRCK6xxx0001 & SRCK6xxB001) are:

$$V_{\max} = 8.4 \text{ V}$$

$$I_{\max} = 3.15 \text{ A}$$

$$C_i = 98.15 \mu\text{F}$$

$$L_i = 7.92 \mu\text{H}$$

SRCK6XXX0001 & SRCK6XXB001 – CABLE WITH HEAVY DUTY IN-LINE PTT

SRCK6xxx0001 is the interface cable to connect IS SM1R with any radio that utilizes a 7.4V typical mobile radio battery pack.

SRCK6xxxB001 is the interface cable to connect IS SM1RDW with any radio that utilizes a 7.4V typical mobile radio battery pack.

