

SM1P-Ex

TECHNICAL INFORMATION

Rev: 2/20/23

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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

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
FCC ID: QOQWT32I

IC: 8376A-SM1XSR
IC: 5123A BGTWT32I

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 SM1P-EX and EXDP series Smart Muff Headsets.

Conforms to the following directives:

2011/65/EU (L174/88-110)	RoHS Directive
(EU)2016/425 (L81/51-98)	PPE Directive
2014/53/EU (L153/62-106)	Radio Equipment Directive
2014/34/EU (L96/309-356)	ATEX 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 489-9: V2.1.1 (2017-03)
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

Explosive atmospheres:

Notified Body number: 0598

SGS Fimko Oy Takomotie 8, FI-00380 Helsinki, Finland

Certification Number: Baseefa18ATEX0049X – Issue 2 / IECEx BAS 18.0035X

Explosive atmospheres EN 60079-0:2018

Explosive atmospheres EN 60079-11:2012

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 29223RG502 and 10409GD501.

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 the surveillance of BSI Group ANZ Pty Ltd (Notified Body 2797). Certification Number: CE 717133

Single protection:

- EN 352-1:2002 Hearing protectors. General requirements Part 1: Ear-muffs
- EN 352-3:2002 Hearing protectors. General requirements Part 3: Ear-muffs attached to an industrial safety helmet
- EN 352-4:2001 Hearing protectors. General requirements Part 4: Level-dependent ear-muffs
- EN 352-6:2002 Hearing protectors. General requirements Part 6: Ear-muffs with electrical audio input

Dual protection:

- EN 352-6:2002 Hearing protectors. General requirements Part 6: Ear-muffs with electrical audio input
- EN 352-7:2002 Hearing protectors. General requirements Part 7: Level-dependent ear-plugs
- EN 352-8:2001 Hearing protectors. General requirements Part 8: Entertainment audio ear-muffs

Sensear PTY Ltd: Hehir Street, Belmont, Perth, Western Australia Date: 25 October 2022



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CEO

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

SM1P-Ex Technical Information

TECHNICAL SPECIFICATIONS

	Headband	Behind the Neck	Helmet Mount
Weight	495g (17.46 oz.)	428g (15.09 oz.)	480g (16.93 oz.)
Operating temperature	-20°C to +60°C (-4°F to 140°F)		
Charging temperature	0°C to +40°C (32°F to 104°F)		
	Non-Intrinsically Safe	Intrinsically Safe	
Battery type	2650 mAh Lithium Polymer, rechargeable	2250 mAh Lithium-ion, rechargeable	
Battery charge time	7 hours	4 hours	
Operating time	24 hours	18-24 hours	
Housing Material	PP, ABS + TPE		
RoHS Compliant	Yes		

NRR AND SLC80

The SM1P-Ex 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)

SM1P-Ex measured in accordance with ANSI S3.19 -1974.

Headband mount- SM1PBExxx

Frequency (Hz)	125	250	500	1000	2000	3150	4000	6300	8000	NRR
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- SM1PExxx

Frequency (Hz)	125	250	500	1000	2000	3150	4000	6300	8000	NRR
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 - SM1PHEExxx

Frequency (Hz)	125	250	500	1000	2000	3150	4000	6300	8000	NRR
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)

SM1P-Ex measured in accordance with ANSI S12.6 - 2008.

Headband mount- SM1PBEXxx

Frequency (Hz)	125	250	500	1000	2000	4000	8000	NRR(SF)
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	
APV80	18.9	20.1	28.4	31.3	34.5	35.6	36.1	

Behind-the-Neck mount- SM1PEXxx

Frequency (Hz)	125	250	500	1000	2000	4000	8000	NRR(SF)
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	
APV80	16.2	17.8	26.2	32.7	28.8	32.7	31.9	

Helmet mount - SM1PHEXxx

Frequency (Hz)	125	250	500	1000	2000	4000	8000	NRR(SF)
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	
APV80	9.5	12.1	19.7	27.0	31.1	29.5	29.5	

PASSIVE ATTENUATION (AS/NZS 1270:2002)

SM1P-Ex measured in accordance with AS/NZS 1270:2002.

Headband mount- SM1PBEXxx

<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 atten. – Standard dev. (dB)	16.0	18.6	27.6	30.2	32.5	34.1	34.0	

Behind-the-Neck mount- SM1PEXxx

<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 atten. – Standard dev. (dB)	14.2	15.9	23.3	31.3	26.0	30.1	27.8	

Helmet mount - SM1PHEXxx

<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 atten. – Standard dev. (dB)	9.9	13.6	19.5	25.8	31.0	29.0	28.4	

PASSIVE ATTENUATION (EN352-1 AND EN352-3)

SM1P-Ex measured in accordance with EN352-1 and EN352-3.

Headband mount- SM1PBExxx (EN352-1)

Frequency (Hz)	125	250	500	1000	2000	4000	8000	H	M	L	SNR
								(dB)			
Mean attenuation (dB)	22.	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.	21.9	29.2	31.8	33.3	35.9	37.1				

Behind-the-Neckmount- SM1PEExxx (EN352-1)

Frequency (Hz)	125	250	500	1000	2000	4000	8000	H	M	L	SNR
								(dB)			
Mean attenuation (dB)	20.	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.	18.0	24.6	31.5	30.4	33.0	33.5				

Helmet mount-SM1PHEExxx (EN352-3)

Frequency (Hz)	125	250	500	1000	2000	4000	8000	H	M	L	SNR
								(dB)			
Mean attenuation (dB)	20.	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.	18.8	24.9	29.8	34.6	34.1	34.6				

The SM1P-Ex has level dependent facilities and the criterion levels as defined in EN352-4 are displayed below:

Model	H	M	L
	dB(A)		
SM1P-Ex	108.6	104.6	103.4

TWO-WAY RADIO INPUT (EN352-6)

	NRR ANSI S3.19-1974 US	SLC [80] AS/NZS 1270:2002 Australia	SNR EN352-1 and EN352-3 EU	NRR[SF] ANSI S12.6-2008 US & Canada
	Foam	Foam	Foam	Foam
Headband	30dB	32dB, Class5	37dB	33dB
Behind-the-Neck	31dB	33dB, Class5	38dB	33dB
Helmet	29dB	30dB, Class5	38dB	31dB

TWO-WAY RADIO INPUT (EN352-6)

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

SIZE RANGES

WARNING Earmuffs complying with EN352-1 are of 'small size range', 'Medium size range' or 'large size range'. 'Medium size range' earmuffs will fit most wearers. 'Small size range' or 'large size range' earmuffs are designed to fit wearers for whom 'medium size range' earmuffs are not suitable. The SM1P-Ex headband, SM1P-Ex behind-the-neck, and SM1P-Ex helmet adapters may be adjusted for small, medium, or large size.

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 EN352 series of standards.

CLAMPING FORCE

The clamping force of the SM1P-Ex has been measured in accordance with AS/NZS 1270

Model	Part #	Units	Initial measurements			Post-flex measurements		
			A	B	C	A	B	C
SM1P-Ex-Headband mount	SM1PBXXX & SM1BBXXX	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
SM1P-Ex-Behind-the-Neck mount	SM1PEXXX & SM1BEXXX	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
SM1P-Ex-Helmet mount	SM1PHXXX & SM1BHXXX	N	9.3	9.3	9.3	9.3	8.9	9.3

INTRINSICALLY SAFE CERTIFICATION – Ex MODEL



The SM1P-Ex meets the following international standards for use in explosive gas environments:

- II 2G Ex ib IIC T4Gb (-20°C ≤ Ta ≤ +40°C)
- II 2D Ex ib IIIC T155°C Db (-20°C ≤ Ta ≤ +40°C)
- I M2 Ex ib I Mb (-20°C ≤ Ta ≤ +60°C)
- CI I, Div 1 Grp A-D, T4 (-20°C ≤ Ta ≤ +40°C)
- CI I, Zn1, AEx ib IIC T4Gb (-20°C ≤ Ta ≤ +40°C)
- CI II, Zn21, AEx ib IIIC T155°C Db (-20°C ≤ Ta ≤ +40°C)

MARKINGS

The SM1P-Ex contains the following markings:

Hazardous location class and group and temperature class

II 2G Ex ib IIC T4 Gb II 2D Ex ib IIIC T155°C Db I M2 Ex ib I Mb IECEX BAS 18.0035X Baseefa18ATEX0049X BAS23UKEX0020X		Sensear 4 Hehir Street Belmont WA 6104 CE 0598 2797 UK CA 1180
SGSNA/19/SUW/00190X Intrinsic Safety / Sécurité Intrinsèque  710402	CI I, Div 1 Grp A-D, T4 CI I, Zn 1, AEx ib IIC T4 Gb CI I, Zn 21, AEx ib IIIC T155°C Db	Dwg SGSCUS005

Where “XXXX” is the number of the ATEX Notified Body responsible for the ATEX QAN.

ENTITY PARAMETERS

The following entity parameters are for when SM1P-Ex is used with SRCK61xxCCxx or SRCK62xxCCxx at the radio or intrinsically safe device end of the interface cable.

Entity Parameter	Value
U_i/V_{max}	9V
C_i	0.09μF
L_i	0μH
I_i	2.22A
P_i	1.3W

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





Waste (Disposal) of your Electronic and Electric Equipment

EN

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.

FR

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'un croix. Comme la directive DEEE explicite, cette marque composée d'une poubelle sur roues barrée d'un 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 et 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 collection de déchets dans leur pays.

NL

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

De richtlijn AEEA van de Europese Unie vereist dat product en 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 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.

DE

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-Richtlinie 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 Geräteherstellers in Verbindung, der Ihnen Auskunft zur Altgeräteentsorgung/-abholung geben kann.

IT

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

La direttiva RAEE della Unione Europea richiede che i produttori 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 il cliente è il detentore finale in un paese della UE, non dovrebbe essere smaltito negli apparecchi, negli 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 apparecchiature.

PT

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 conteúdo do lixo barrado com uma cruz no próprio produto (ou, em determinados casos, na embalagem). Tal como definido pela Directiva REEE, este conteúdo 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 ou equipamento ou um centro de assistência para obter informações relativas ao sistema de recolha do lixo no país onde vivem.

RU

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

Директива «УЭЭО» Европейского Союза требует, чтобы на изделиях, продаваемых в странах ЕС (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.

ES

La directiva de la Unión Europea (EU) 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 se anroten con el símbolo de un contenedor de basuratachados sobre el producto (o en algunos casos sobre el envase). Conforme con la directiva RAEE, el símbolo del contenedor de basuratachados significa que los clientes y usuarios finales en los países de la UE no deberían disponer los aparatos eléctricos o electrónicos ni ningún otro de sus componentes junto a la basuradoméstica. 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 pa