



Steel Series XM

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Description

The Steel Series X designed by Sonion is a ready-to-use RIC platform with stainless steel speakers and Sonion’s future-proof CS98 connector system with embedded power class identification.

The Steel Series XM based on Sonion’s 26UAX01GF receiver delivers a Medium Power RIC solution and is available in 4 sizes, left (blue) and right (red) with a pre-assembled wax guard.

The Steel Series X is compatible with UniTip domes.



Applications

- Receiver In Canal (RIC) Hearing Aids and Hearables
- Medium Power class instruments
- Moderate hearing loss

Features

- Complete RIC solution
- State-of-the-art miniature receiver housing
- Power class identification
- Future proof CS98 plug/socket with 8 terminals
- Halogen Free
- REACH & RoHS Compliant

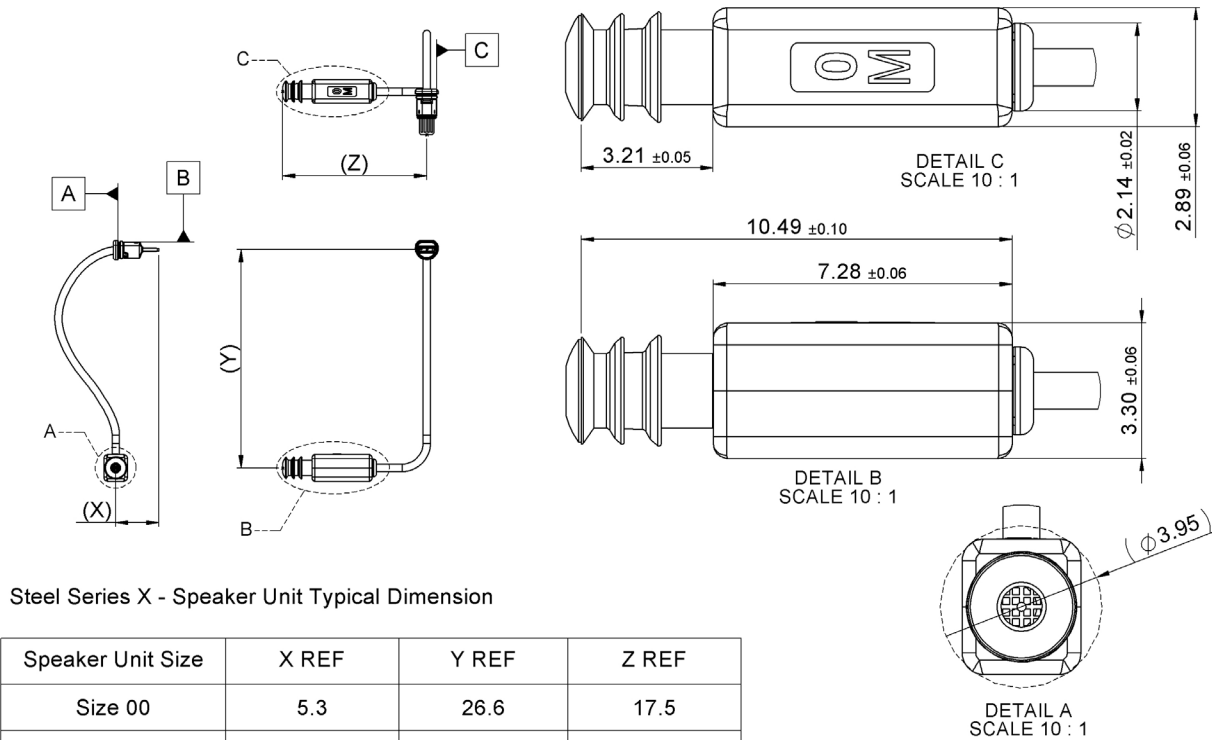
Ordering information

Speaker unit size	Sonion PN	Temperature range	Packaging
Size 00L	3073-3212435	-10°C to 65°C	Tray
Size 01L	3073-3212436	-10°C to 65°C	Tray
Size 02L	3073-3212437	-10°C to 65°C	Tray
Size 03L	3073-3212438	-10°C to 65°C	Tray
Size 00R	3073-3212439	-10°C to 65°C	Tray
Size 01R	3073-3212440	-10°C to 65°C	Tray
Size 02R	3073-3212441	-10°C to 65°C	Tray
Size 03R	3073-3212442	-10°C to 65°C	Tray

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Mechanical description

Product dimensions in mm - Drw. no.: 0300051342

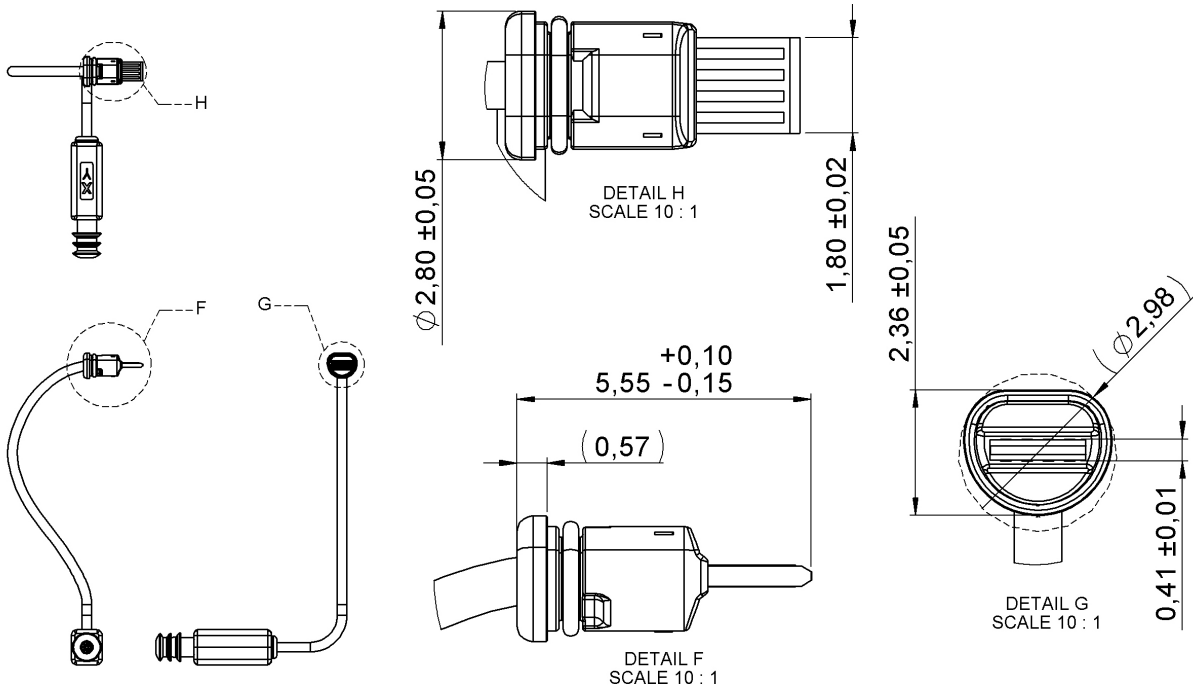


Steel Series X - Speaker Unit Typical Dimension

Speaker Unit Size	X REF	Y REF	Z REF
Size 00	5.3	26.6	17.5
Size 01	5.3	32.6	17.5
Size 02	5.3	38.5	17.5
Size 03	5.3	43.2	17.6

Note: other dimension, bend shape and surfaces are defined in 3D CAD file

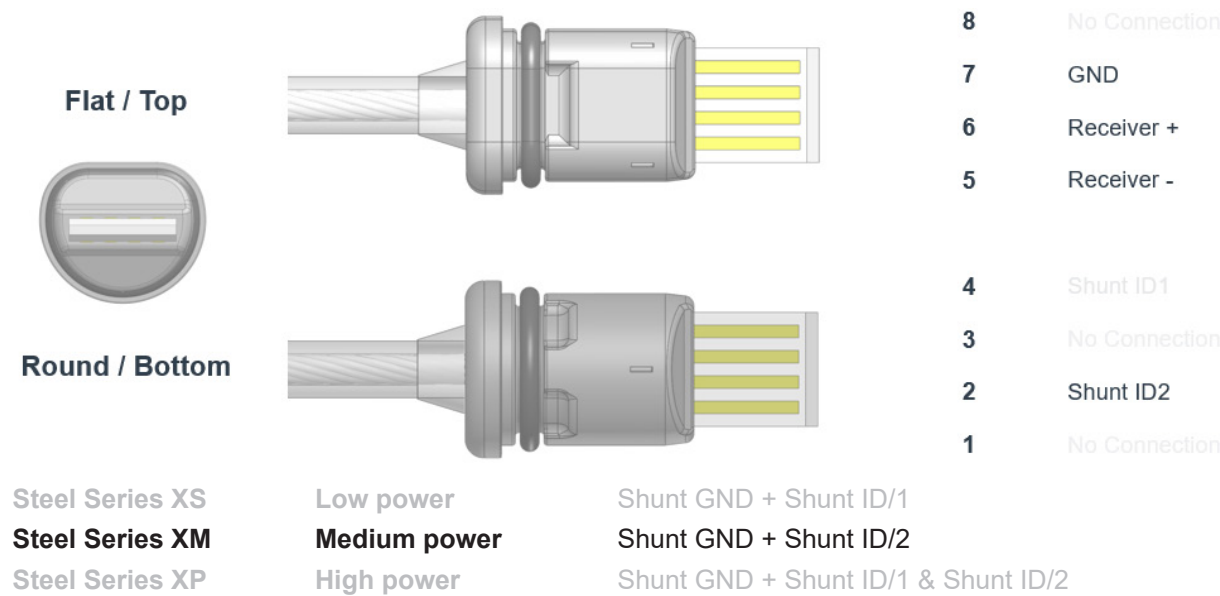
Plug dimensions in mm [inch] - Drw. no.: 0300051342



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Pin assignment and Power rating ID

The power level of the Steel Series X speaker units can be detected via shunt scheme as shown below.



Material specifications

Receiver	Sonion 26UAX01GF
Plug and Socket	Sonion CS98 connector system
Plug material	Grilon TSG-15 FA
PCB	Ceramic HBS2 (Al2O3, 96.5%) with solder mask and surface. Treatment / layer: 2µ Ni + 3µ AuCo
Sealing ring	Silpuran 8060/50 (black)
Cable	
Extruded cable	Cable 8x7x0.025 [mm], XHTW/Ag50 HF litz OD 0.9, Pebax 7233 SP 01 with fiber
Speaker unit housing	
Housing cans	AISI 316L
Plastic insert	PA6, Ultramid A3EG6, transparent
Spout	AISI 316LPX
Adhesive	
Adhesive	Loctite M-121 HP
Lacquer	SMD adhesive PD 205 Ajet
Sportslock (not included)	
Sportslock	Pebax 7233 SP 01
Wax protection system	
Wax guard	CeruSTOP™ wax protection
Dome (not included)	
Spout interface	Designed for UniTip domes

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Mechanical specifications

Complete speaker unit

Pull force: spout to plug > 20 N

Receiver housing

Separation force > 25 N

Tube to receiver housing

Push force: cable to receiver housing > 10 N

Spout

Pull force (inline) > 25 N

Push force (perpendicular) > 20 N

Plug and receiver

Wiggle test: plug and receiver side 2500 cycles in line to axis @ twist $\pm 90^\circ$, speed 75°/sec, weight 50g

UniTip dome

Retention force > 4 N

See the CS98 Connector System datasheet for further mechanical specifications pertaining to plug and socket.

Absolute Maximum Ratings

Exposure to stress beyond the below Absolute Maximum Ratings can induce permanent damage to the device.

Parameters	Min	Typ	Max	Unit	Comments
Supply voltage (VDD)			49.9	V	
Temperature range - biased	-10	38	65	°C	
Temperature range - storage	-40	25	70	°C	
Humidity - storage	10	60	93	%RH	
Storage ambient barometric range	500	1000	1100	hPa	Not tested above

Environmental standard

This product meets the following standards:

REACH	All materials comply with REACH regulation (EC) no. 1907/2006
RoHS	All materials comply with RoHS Directive 2011/65/EU (including amendment 2015/863)
Biocompatible	All skin contact materials comply with ISO 10993-5 (cytotoxicity)
Halogen free	IEC 61249-2

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Electro-acoustical specifications

Acoustic loading: UniTip spout sealed to 711 IEC coupler. Constant voltage drive of 0.160 V rms (eq. with 0.35 mVA @ 500 Hz) with <1 Ohm source impedance. Environmental conditions: 23°C (73.4° F), 50% RH. All acoustical data is measured with wax protection system in place.

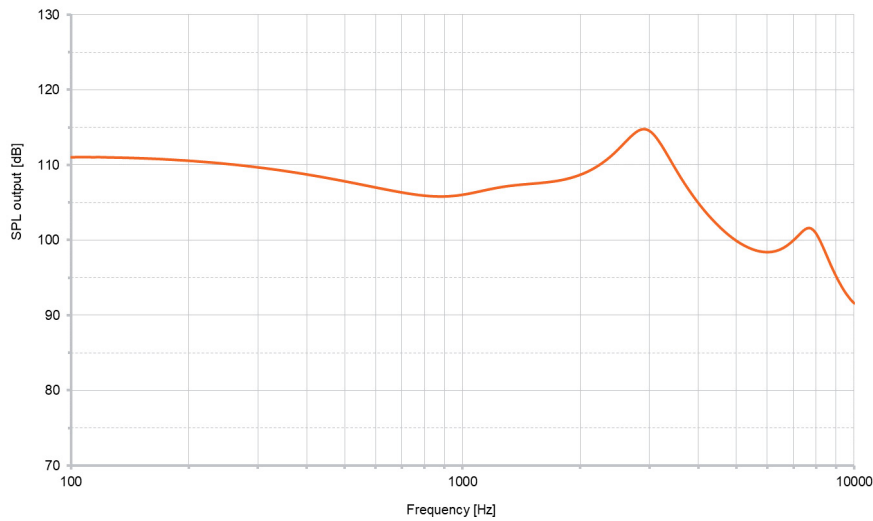
Acoustic parameters		Min	Typ	Max	Unit	Comments
Sensitivity	@ 200 Hz	108	111	114	dB	
	@ 500 Hz	105	108	111	dB	
	@ 1000 Hz	103.5	106.5	109.5	dB	
Peak 1	frequency	2600	2900	3200	Hz	
	output	111.5	114.5	117.5	dB	
Valley 1	frequency	5500	6000	6500	Hz	
	output	95	98		dB	
Peak 2	frequency	7150	7750	8350	Hz	
	output	98.5	101.5	104.5	dB	
THD	@ 1/3 peak			5	%	
	@ 1/2 peak			5	%	
Maximum output @ peak frequency		125.5	128.5		dB	@ 0.92 Vrms

Electric parameters		Min	Typ	Max	Unit	Comments
Impedance @ 1000 Hz		104	130	156	Ohm	
Impedance @ 500 Hz		60	75	90	Ohm	
DC resistance @ 20°C		42	49	56	Ohm	
DC bias current range		zero bias				

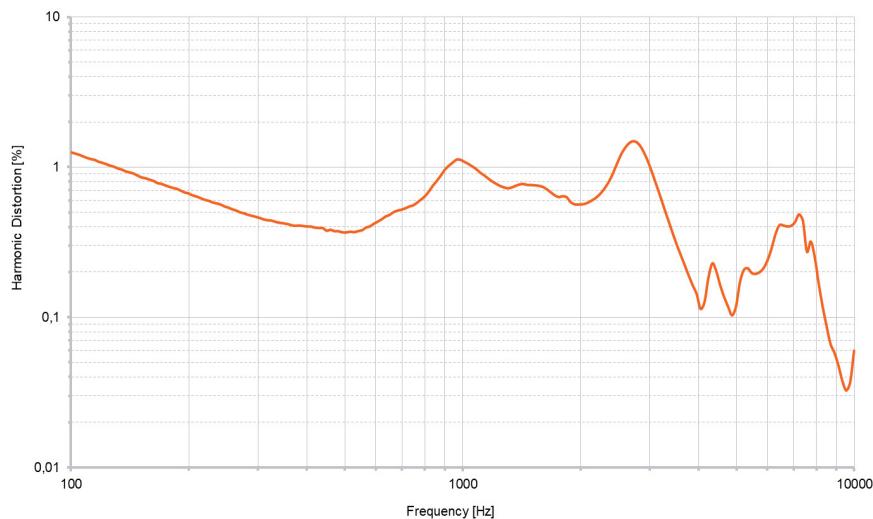
Additional parameters		Min	Typ	Max	Unit	Comments
Shock resistance (receiver specifications)		14000			g	90% survival rate with THD @ 1/2 peak frequency < 10%
Storage temperature range		-40		60	°C	
Storage humidity		10		95	%RH	

A positive voltage applied to the negative terminal (-) will result in an increase in pressure at the sound outlet.

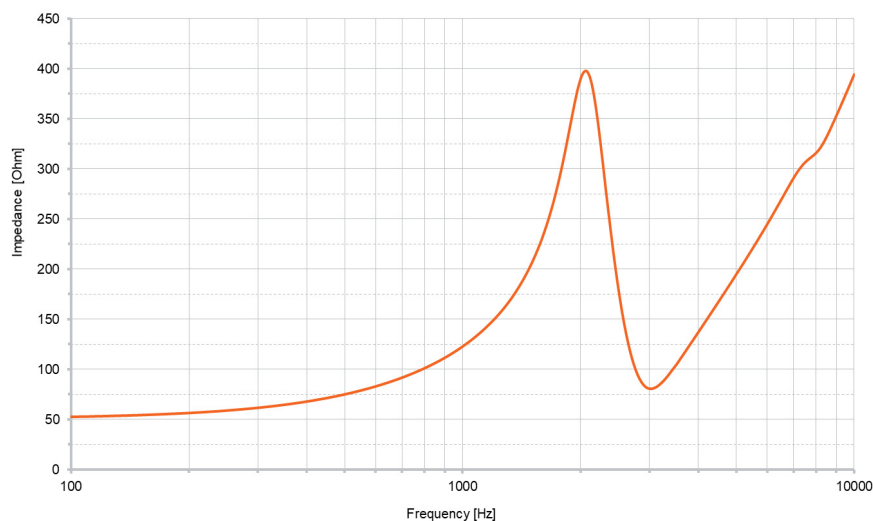
Response curve, typical



THD vs Frequency, typical



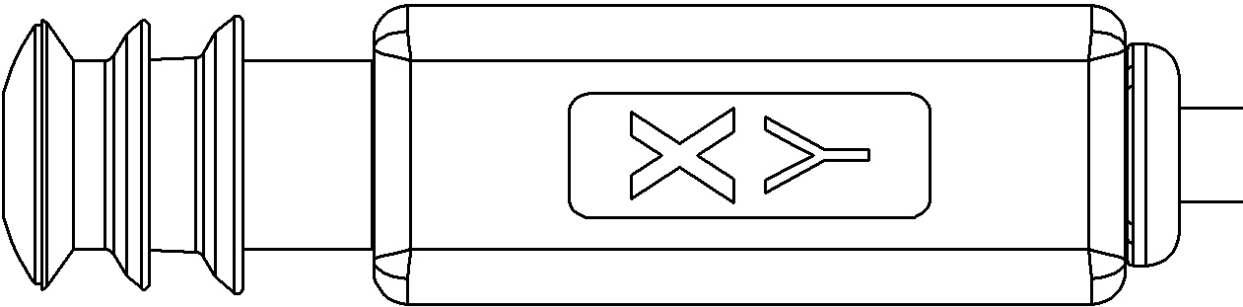
Impedance curve, typical



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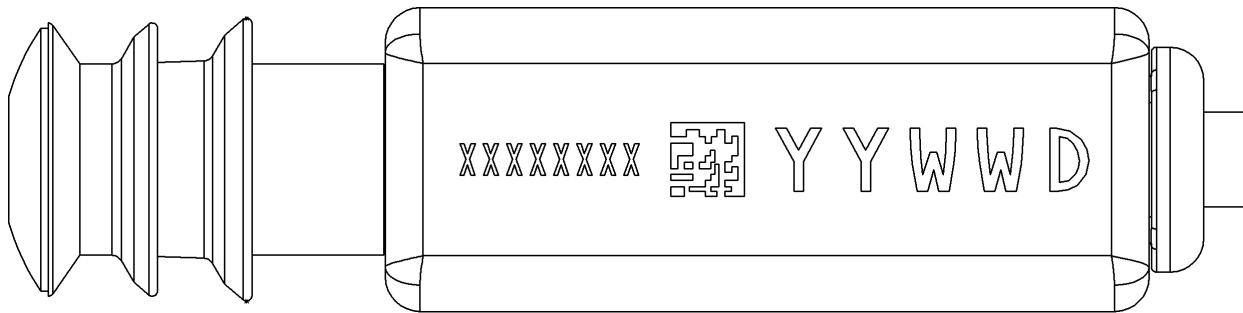
Traceability

Power rating and sizes (Tampon printing)



- Speaker unit side
- Speaker unit size
- Power rating
- Tampon printing colored red (right) or blue (left)
- Tampon printing digit X (0-3)
- Tampon printing letter Y - M describes the Steel Series XM speaker unit

Product information (Laser coding)

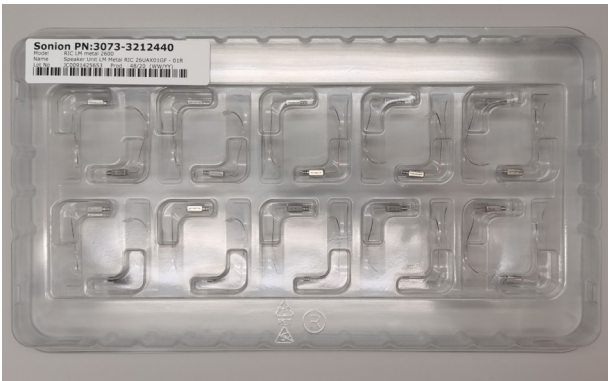


- Batch code
- YYWWDD
- Batch production date: Year (YY) - Week (WW) - Day (1-7, Sunday = 7)
- Unique coding
- XXXXXXXX
- Serial numbers (8 alphanumeric) unique to each speaker unit
- Data matrix
- Record of the unique identification number for direct read-out

Packaging and accessories

Packaging

The Steel Series RIC modules are delivered by default in tray (left / right) of 300 mm x 165 mm x 25 mm (20pcs / tray) [11.81 in x 6.50 in x 0.98 in]. Each Steel Series RIC module is delivered with CeruSTOP™ wax protection system.



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Packaging traceability

A sticker label on each tray describes the product size, side and power rating.

Label

Sonion PN	Sonion part number
Model	Product name
Lot No	Production lot number
Prod	Production date (WW/YY)



Accessories

The Steel Series X speaker unit will be able to accommodate the following parts:

Connector socket

CS98 socket (SMD)	Ordered and delivered separately in ToR - MoQ = 100pcs Part number: 9976-3201315
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Ear domes

Unitip domes	Ordered and delivered separately in box of 10pcs, each box with a label describing ear dome type and size. Larger lot size available on request.
Open 5mm short	Part number: 9972-3104381
Open 7mm short	Part number: 9972-3104383
Open 10mm short	Part number: 9972-3104385
Tulip 12mm short	Part number: 9972-3104387
Power small	Part number: 9972-3107100
Power medium	Part number: 9972-3107101
Power large	Part number: 9972-3107102



Wax protection system

CeruSTOP™	Extra parts ordered separately - delivered in package of 8pcs Part number: 9974-3107880
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Sportslock

XM sportslock	Ordered and delivered separately in lot of 100pcs Part number: 9973-3213697
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Note that receivers or Receivers In Canal series of this type can produce very high sound pressure levels. Special attention should be paid when such devices are applied in ear products in order to prevent possible hearing damage.

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