# RIC-E50D

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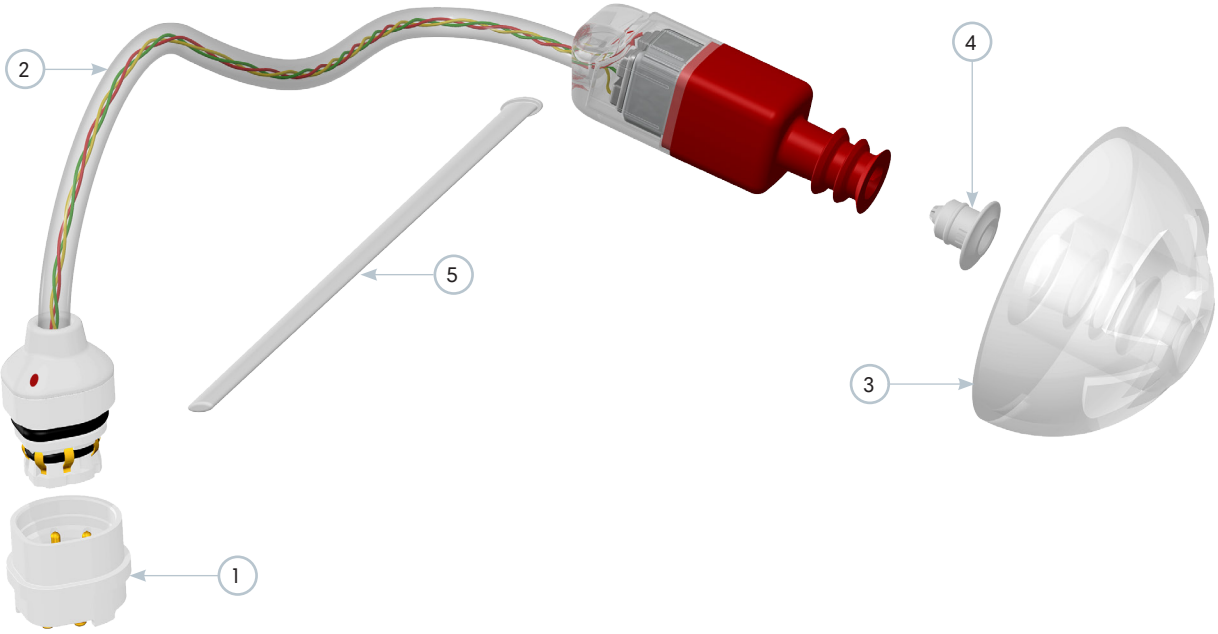



## Features

- Generic RIC module for moderate gain hearing loss
- Low vibration high gain E50D dual receiver
- Future proof CS8X plug/socket with 8 terminals
- State-of-the-art receiver housing

## List of components

1. CS8X socket w/ 8 terminals
2. RIC module
3. Ear dome
4. Wax protection
5. Sportslock

## Contents



Sonion reserves the right to make changes at any time to improve reliability, function or design, in order to provide the best product possible.

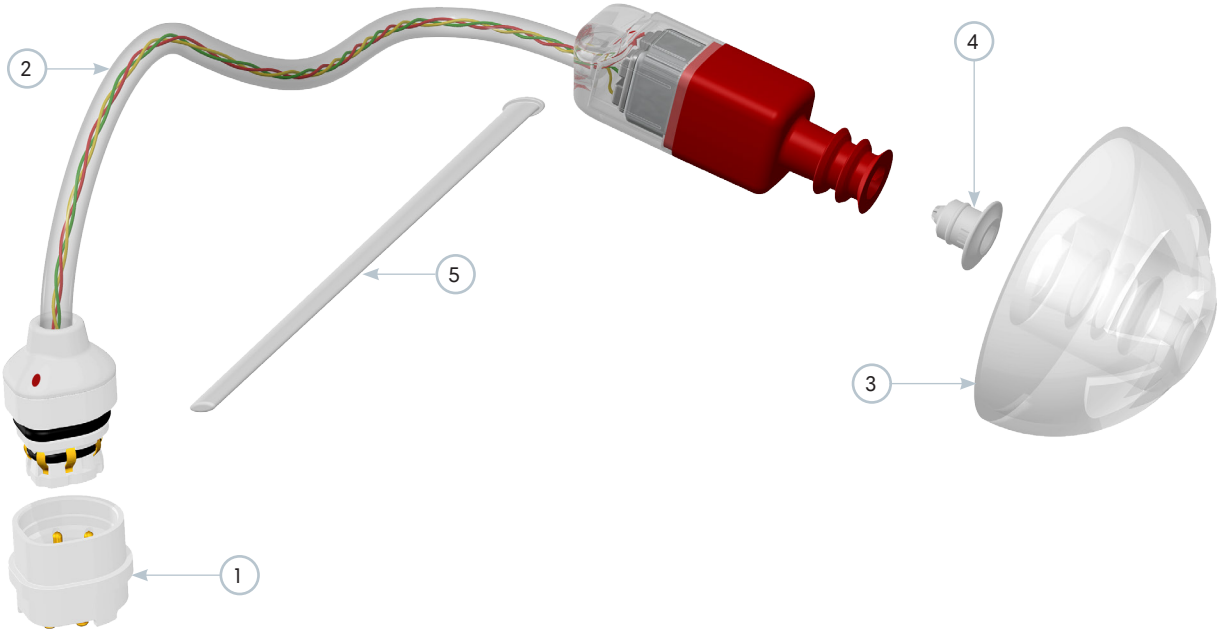
# 1. History Revision

| Revision Number / Date | Change from last revision |
|---|---|
| **001/2014-10-10** | First released version |

## 2. Product Description

**RIC-E50D module and accessories**

| Item | Description | Additional info |
|---|---|---|
| **1** | CS8X Socket | See CS8X Data Sheet |
| **2** | RIC-Module<br>(CS8X plug, tube, litz wires, receiver housing with E50D receiver and wax protection) | See Product Configuration Table |
| **3** | Ear domes, different types and sizes available | See variant offering in table on page 5 |
| **4** | CeruSTOP™ compatible wax protection | Included in RIC-Module |
| **5** | Sportslock | Optional |



## Receiver Housing

**State-of-the-art receiver housing design:**

1. Designed for the E50D receiver series and optimized cross section for improved fit rates
2. Specially designed angled tube for easier placement in the ear canal
3. Designed for CeruSTOP™ compatible wax filter systems
4. Designed for sportslock as optional accessory
5. The front part of the left and right side receiver housings will have blue and red colors respectively. The color of the rear housing part can be customized

## UniTip Domes

**The following UniTip ear domes are specially designed for RIC-4400 and RIC-E50D**

| Ear Dome Offering | |
|---|---|
| **Ear Dome Type** | **Short** |
| **Open 5 mm** |  |
| **Open 7 mm** |  |
| **Open 10 mm** |  |
| **Closed 12 mm** |  |

## 3. Mechanical Specifications

**Connection force, initial:**

| Part | Requirement Specification / Test method | Acceptance criteria |
|---|---|---|
| **Plug and Socket** | Connection and disconnection force | 9.5 ± 3 N |
| **Tube** | Pull force @ 15 N | Elongation ≤2.2 mm |
| **Tube to receiver housing** | Pull force @ 15 N | No electrical failures |
| **Tube to plug housing** | Pull force @ 15 N | No electrical failures |
| **Tube to receiver housing** | Wiggle test (bend ± 90°) 30.000 cycles | No electrical failures, no visual defects |
| | Wiggle test (twist ± 90°) 30.000 cycles | No electrical failures, no visual defects |
| **Complete speaker unit** | Pull test (single test) @ 15 N | No electrical failures |
| | Pull test (50 cycles) @ 0-12.5 N | No electrical failures |
| | Pull test (single test) @ 25 N | No separation of parts |
| **Ear Domes** | Disconnection force, open domes | 4 N min. |
| | Disconnection force, closed domes | 5 N min. |

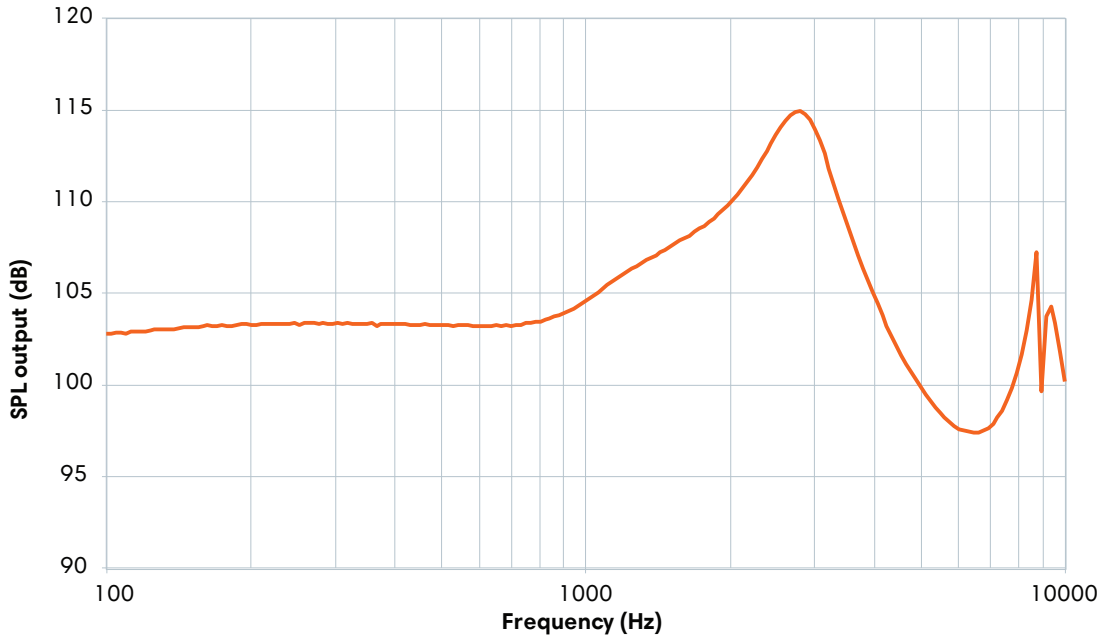
## 4. Acoustical Specifications – RIC-E50D

Detailed acoustical data for the E50DAA012G receiver integrated in the receiver housing with wax protection are presented separately.

- For complete E50D receiver details refer to the data sheet on www.sonion.com

### Typical response curve for the RIC-Module

Refer to specifications section for measurement conditions




### Specifications

Acoustic loading: IEC 711 coupler without tubing with FCQ Coupler ring – custom part
Constant voltage drive of 0.18 V rms (eq. with 0.35 mVA @ 500 Hz)
Measurement with wax filter
Environmental conditions: 23° C 50% RH

| Acoustic Parameters | | Frequency [Hz] | | | SPL Output [dB rms] | | | Comments |
|---|---|---|---|---|---|---|---|---|
| | | Min | Typ | Max | Min | Typ | Max | |
| **Sensitivity @ 200 Hz** | | | 200 | | 102.5 | 103 | 103.5 | |
| **Sensitivity @ 500 Hz** | | | 500 | | 102.5 | 103 | 103.5 | |
| **Sensitivity @ 1000 Hz** | | | 1000 | | 103.5 | 104 | 104.5 | |
| **Peak** | | 2600 | 2800 | 3000 | | 115 | | |
| **Valley** | | 4840 | 6440 | 7040 | | 97.5 | | |
| | | | | | | | | |
| **THD** | **@ 1/3 peak** | | | 6 | | | | |
| | **@ 1/2 peak** | | | 6 | | | | |
| **Max output @ peak frequency** | | | | | | 122 | | 0.92 V rms |

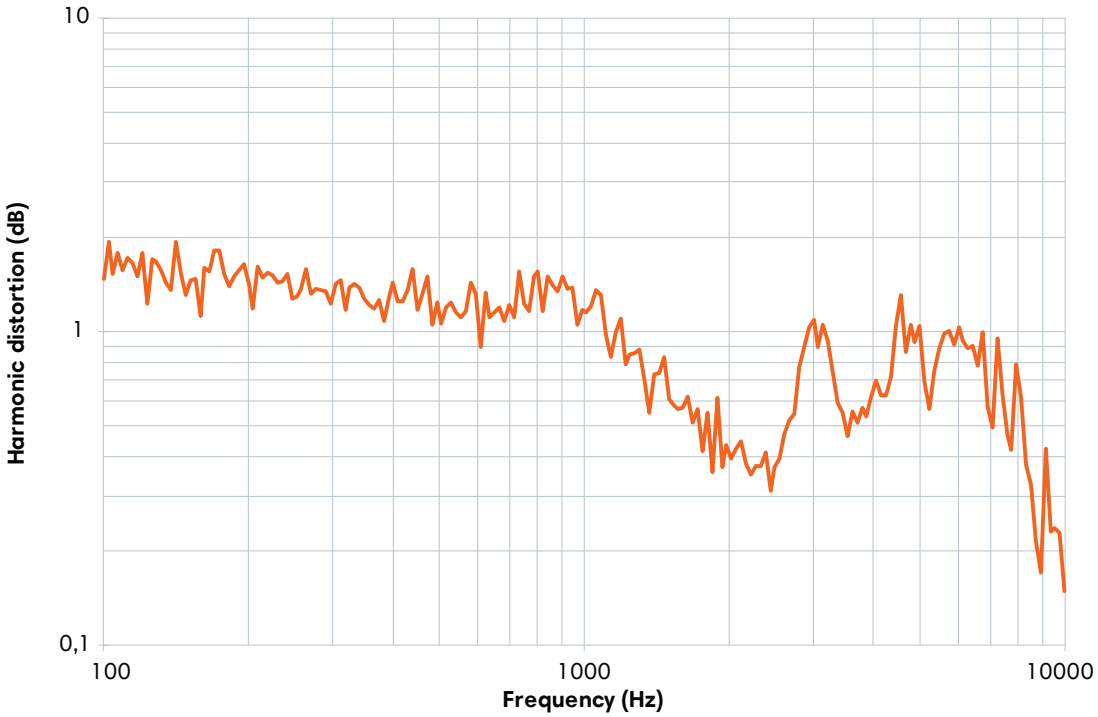
| Electric Parameters | Min | Typ | Max | Unit | Comments |
|---|---|---|---|---|---|
| **Impedance @ 1000 Hz** | 94 | 117 | 140 | Ω | |
| **Impedance @ 500 Hz** | 79 | 99 | 119 | Ω | |
| **DC resistance @ 20 C** | 76 | 90 | 104 | Ω | |
| **DC bias current range** | Zero Bias | | | | |

| Additional Parameters | Min | Typ | Max | Unit | Comments |
|---|---|---|---|---|---|
| **Shock Resistance** | 10000 | | | g | 80% survival rate with THD @1/2 peak freq<10% |

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

### Typical THD curve

Refer to specifications section for measurement conditions



## 5. Material Specifications

**All materials comply with ISO 10993-1**
**Biocompatibility: All materials**

| Tube | |
|---|---|
| **Material** | PA11 |

| Wires | |
|---|---|
| **Litz** | 3 twisted litz bundles of 7 strands each with<br>0,032 mm diameter<br>Litz colors: red, green and amber color |

| Receiver housing | |
|---|---|
| **Rear Housing** | PA66 |
| **Front Housing** | PA66, red or blue colored |
| **Receiver** | E50D, Spoutless |

## 6. Environmental Conditions

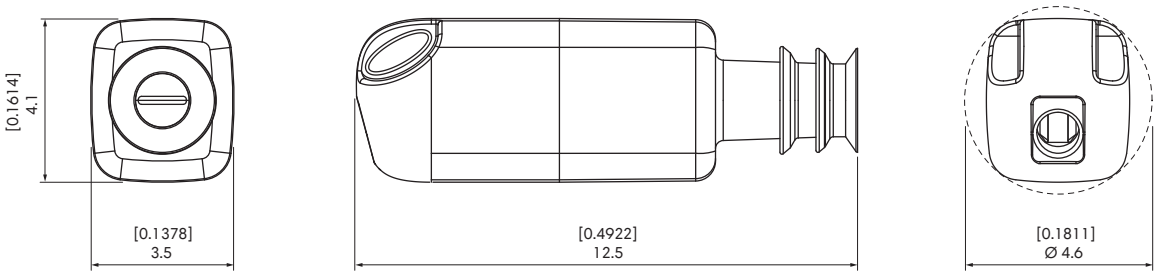
| Storage | |
|---|---|
| **Temperature** | -40 to +60 °C |
| **Humidity** | 10 to 95% RH |

## 7. Recommended Processing Conditions

Ultrasonic cleaning must be avoided as it will damage the receiver unit.

## 8. Mechanical Dimensions

**RIC-E50D Housing:**




Dimensions are [inch] mm.

## 9. Sonion RIC Labeling

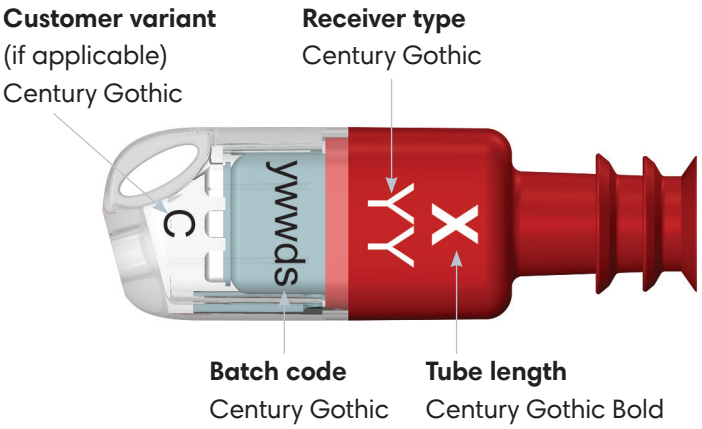
Each individual receiver housing be labeled with receiver type, tube length and batch code. In case of customer specific variants, an additional labeling code will be added. Standard labeling is shown below:

| Tube length (X) | Label |
|---|---|
| **S (small)** | 0 |
| **M (medium)** | 1 |
| **L (large)** | 2 |

| Receiver Type (YY) | Label |
|---|---|
| **Small (4400)** | S |
| **Medium (E50D)** | M |
| **Power** | P |

| Batch Code (ywwds) | Label |
|---|---|
| **Y (year)** | 0-9 |
| **WW (week)** | 1-52 |
| **D (day)** | 1-7 |
| **S (shift)** | a-c |
| **C (customer variant)** | A-Z |

**Generel system:**




**Example:**
**2 S 3424bA**


| 2 | |
|---|---|
| **Tube length (X)** | **Label** |
| **M (medium)** | 2 |

| S | |
|---|---|
| **Receiver Type (YY)** | **Label** |
| **Medium (E50D)** | M |

| 3424bA | |
|---|---|
| **Batch Code (ywwds)** | **Label** |
| **Y (year)** | 3 (year 2013) |
| **WW (week)** | 42 (week 42) |
| **D (day)** | 4 (day number four = Thursday) |
| **S (shift)** | b |
| **A (customer variant)** | A, blue color: left ear |

## 10. Packaging

- Separate CS8X Sockets are supplied in tape-on-reel. To be ordered separately
- Ear domes are supplied in boxes of 10 pcs each. Each box will have a label which describes the ear dome type and size (e.g. 7S). To be ordered separately
- The RIC-modules are by default delivered in trays of 50 pieces

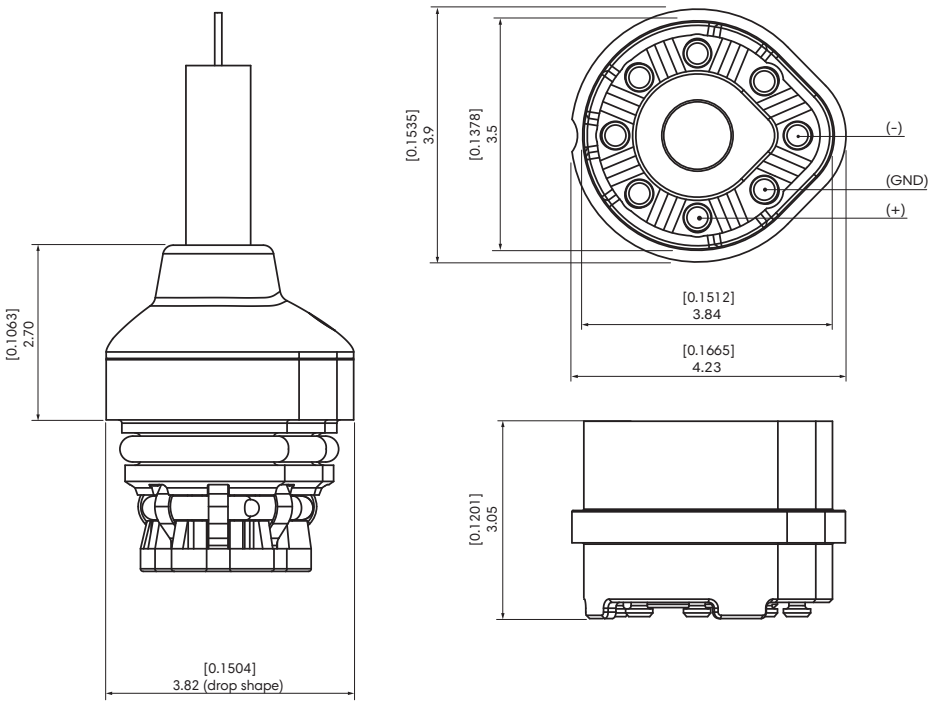
## 9. Configuration Table – RIC-E50D

**Applicable for complete RIC-E50D Modules**

| Part | Parameters | Options | Comments |
|---|---|---|---|
| **CS8X Socket** | Terminal Style | 1. Reflow SMD terminals<br>2. Rigid terminals<br>3. Flexible terminals | For flexible terminals a back reinforcement is required. Number of wires, pin assignment and color coding to be agreed with customer. |
| | Number of Terminals | Standard design | The CS8X Socket will always have 8 terminals installed. |
| | Housing Style | Standard design | Full flange |
| | Plastic Color | Standard design | Color matching not possible in LCP. Uncolored LCP only, color matching not possible in LCP |
| | | | |
| **CS8X Plug** | Number of Terminals | Standard design | The CS8X Plug will always have 8 terminals installed. |
| | Plug Top Style | Standard neutral design for Ø1.0mm tube | A Ø1.0/0.5mm tube will accommodate up to 8 unshielded litz wires. |
| | Plug Top Color | 1. Translucent<br>2. Custom color | 1. Standard: Translucent plug top<br>2. Custom: Different plug top colors available upon agreement |

The CS8x Plug/Socket combination has been certified according to IP57 (the certification is not part of the release criteria).

| Part | Parameters | Options | Comments |
|---|---|---|---|
| **Receiver** | E50D receiver variants | 1. E50DAA005G<br>2. E50DAA012G<br>3. E50DAA028G | Please enter preferred receiver type. Grounded receivers (G) will have 3 litz wires |
| **Tube** | Tube lengths and shapes | Size 00L<br>Size 01L<br>Size 02L<br>Size 00R<br>Size 01R<br>Size 02R | The standard offering comes in three sizes 00, 01 and 02. |
| **Sportslock** | Sportslock | 1. With<br>2. Without | Optional Sportslock |
| **Wax Protection** | Pre-installed | Standard filter | Designed for any CeruSTOP™ compatible wax filter |
| **Ear Domes** | UniTip Ear Domes | UniTip domes come in 5, 7, 10 and 12 mm in diameter | UniTip Ear Domes must be ordered separately |
| **Pin assignment in plug** | The number and position of the terminals are fixed | The number of wires (2-8) and positioning on the terminals can be customized | The flexible 2-8 wire connections are prepared for additional in-ear RIC functions or can be used for receiver identification |




Dimensions are in [inch] mm. First angle projection.

**Note:**
The drawings illustrates the main external dimensions. We refer to our 3D CAD files for the exact and complete dimensions.