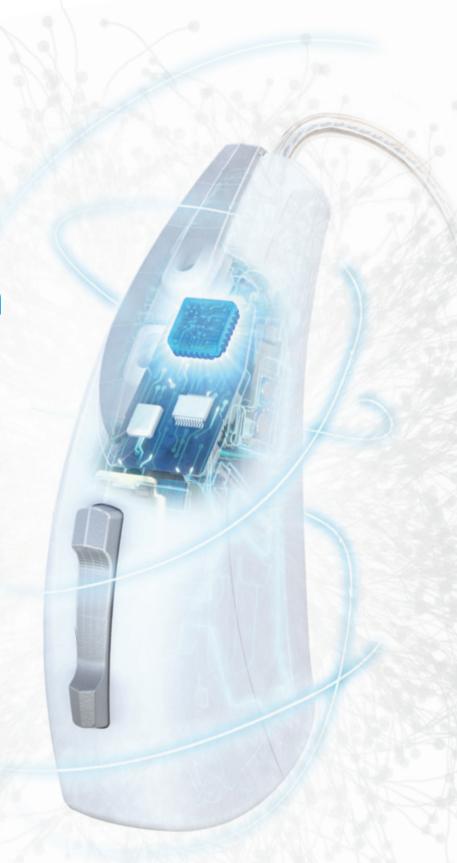


Welcome to the hearing revolution

## livio

The world's first hearing aid that tracks brain and body health





## livio

The world's first hearing aid that tracks brain and body health



#### Our best sounding and best performing hearing aid ever

What makes Livio™ AI hearing aids so revolutionary?
The answer is embedded sensors and artificial intelligence.

Using artificial intelligence enables hearing aids to perform tasks that normally require human intelligence. It helps us optimize the patient experience with:



Body and brain tracking



Natural user interface with tap control



Language translation



Advanced environmental

— Coming Soon —



Fall detection and alerts

Artificial intelligence provides new opportunities for hearing aids to do so much more for your patients.



## A gateway to better health and wellness

#### What making better connections sounds like

Livio AI is part of an ecosystem of products that delivers benefits beyond traditional amplification. The **Thrive™ Hearing app**, an easy-to-use, full-featured app lets users monitor their health, make adjustments, save memories and much more. The ecosystem also includes a suite of streaming accessories with universal Bluetooth® connectivity and telehealth, which enables hearing care professionals to use remote programming to monitor and optimize performance in every listening environment and provide patients with added convenience and an exceptional experience.





The opportunities are limitless.

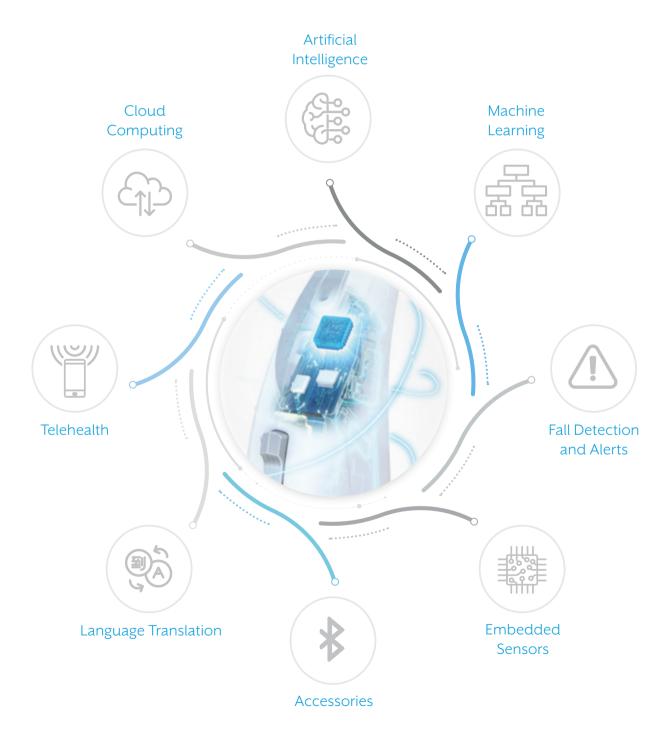
Future releases of Healthable™ hearing technology will include additional health and wellness measurements.

And through ongoing innovation, we will continue to expand and improve the whole ecosystem.

Adding sensors to a device helps it imitate and copy the human perceptual system.
Using embedded 3D sensors lets Livio AI replicate the human vestibular system, which helps people with balance and spatial orientation.

#### LIVIO AI ECOSYSTEM

This ecosystem is unlike any available to hearing aid wearers and works seamlessly to help patients proactively manage their wellness, enhance their listening experience and share important health data with their hearing care professionals.



## livio







Livio AI is a revolutionary, multi-purpose hearing aid that provides superior sound quality, and the ability for users to accurately track their physical, mental and cognitive health. We call it **Healthable** hearing technology – for the first time ever, users can take a proactive approach to their hearing and overall wellness.

## The ear is the best place for accurate fitness tracking



Most fitness tracking devices use the wrist, but the ear provides far more accurate data – in fact, it's the sweet spot for reliable tracking, and Livio AI is the first-ever device to take advantage of that.

Integrated sensors also make Livio AI the first hearing aid to provide a natural user interface. The wearer can tap near their ear to make changes in the hearing aid.

And Livio AI is the world's first integrated hearing system to offer language translation, opening up new connections for patients.







#### Hearing Reality: A new standard in clarity and comfort

Better hearing in noise means less cognitive fatigue

Livio AI is built on our most powerful and efficient platform that offers twice the memory and three times more digital signal processing (DSP) cores than previous platforms. We call it the Thrive Platform, and it utilizes multi-core twin compression architecture, the first of its kind in hearing aids. This provides supreme precision for speech and ultimate sound quality for listening comfort and enjoyment. Thrive also features our new dual radio wireless technology utilizing 2.4GHz and Near-Field Magnetic Induction (NFMI) to deliver improved streaming sound quality, faster and more reliable data and audio transfers, and increased efficiency. With the Thrive Platform, we are able to provide unprecedented sound quality.



Hearing is complex and difficult to replicate. The world around us presents an array of sounds from varied sources – some are streamed input, some are sounds meant to be in the background, and some are extraneous noises that are best blocked out so they don't interfere with the signal of interest. We take in these layers of sounds and our brains blend and focus them differently depending on each situation.

Livio AI hearing aids introduce our most sophisticated and intelligent technology that better replicates natural hearing to provide unprecedented sound quality. We call it **Hearing Reality™** and it works by helping patients manage the layers of sound using real-world signals and mimicking the natural process for reducing

unwanted sounds and augmenting wanted ones to help make hearing effortless.

Our latest technology recently earned a 98% satisfaction rating\* for sound quality from both patients and professionals. Patients were not only overwhelmingly satisfied, they experienced a significant reduction in listening effort.\*\* During clinical trials, experienced users also enjoyed a noticeable improvement in their ability to communicate with more cognitive energy and greatly reduced cognitive fatique.



#### **Analyzes**

- Samples and analyzes sound environment 167 times per second
- Collects full environmental spectrum of sound

#### **Processes**

- High-speed and high-definition information sharing between ears
- Utilizes twin compression for supreme precision for speech and ultimate sound quality for listening enjoyment
- Spatial cues are preserved while speech is selectively identified and enhanced

#### **Delivers**

- Our best performance for hearing in noise
- Significant reduction in listening effort
- More cognitive energy





#### Spatial speech enhancement

The ongoing sharing of information between hearing aids and accessories used in Hearing Reality enables an application of coherence-based spatial speech enhancement. Subtle location-based sound differences allow speech to be selectively identified and enhanced. The result is a **50% reduction in dynamic noise**, compared to previous noise management algorithms, providing better clarity in noise and identifying voices in babble. Spatial cues are preserved so patients feel present and don't lose important spatial awareness.

Hearing Reality provides a distortion-free experience. Based on how the ear processes sound, it delivers listening comfort for loud sounds while ensuring clarity for soft sounds. It also provides added comfort by keeping the hearing aids quiet in quiet environments.

Machine learning lets Livio AI hearing aids analyze and adapt to multiple environments simultaneously to provide patients with an effortless experience. Environmental detection in Livio AI hearing aids is our most rigorously tested system ever. Designed for complex listening environments, it includes seven automated sound classes: speech, speech in noise, music, machine noise, wind, noise and quiet.

50% reduction in dynamic noise

## Comfort and personalization redefined

Livio AI takes patient comfort and personalization to a new level with our most advanced features and technology ever.

Comfort features ensure patients enjoy wearing their hearing aids

Feedback
Control

Best-in-class comprehensive feedback management system

#### Speech Optimization

Our proprietary multi-segment compression architecture combines speech audibility and overall comfort.

#### Quiet

Reduces circuit noise over a wider range of input levels providing a high fidelity listening experience regardless of the level of background noise.

#### Wind

Noise reduction algorithm designed to provide supreme

comfort for wind noise.

#### Surface Nanoshield

Coated on components, cases and Hear Clear™ wax traps, Surface™ Nanoshield gives patients next-generation moisture

and wax repellent to ensure reliability and durability.

Personalization features ensure professionals are able to provide the best care to their patients

#### Speech Indicators for Memory

For each memory programmed, an extensive list of descriptive words is available, allowing professionals to choose the most meaningful indicators for their patient.

#### **Smart VC**

Allows for the gain to increase in all the channels not already at maximum, giving a desired and needed increase in loudness.

#### Frequency Lowering

Enhances real-time audibility by identifying high-frequency speech cues and replicating them in lower frequencies.

#### Music Enhancement

The dedicated music compressor in Livio hearing aids is designed for a more dynamic input and a broader frequency response. Inspire software includes music adjustment controls so professionals can quickly and easily match the subjective tastes of their patients.

#### Tinnitus Technology

Our patent-pending tinnitus solution is designed with personalization and flexibility in mind.







# Enhancing the overall health and wellness of your patients with the Thrive Hearing app

Only Livio AI lets you help patients of all ages take a proactive approach to their overall wellness. 3D motion sensors that detect movement, activity and gestures are integrated into each hearing aid. This information gives your patients access to feedback about their overall body fitness and mental fitness.

Users can easily view and manage their health information with the Thrive Hearing app and receive daily feedback on their progress by viewing their **Thrive Wellness Score**. This full-featured, user-friendly app, allows patients to also see activity progress via the Body Score, and the benefits of wearing hearing aids to their mental fitness via the Brain Score.





#### Body Score -

The combination of activity, steps and overall movement is used to provide a Body Score. This information is tracked daily and accessed easily in the Thrive app. A daily score of 100 points is possible.





#### Brain Score

Because of the important connection between cognitive health and hearing health, Livio Al measures the brain benefits of wearing hearing aids. These Brain Score metrics include hours of daily use, social engagement and the tracking of active listening. A daily score of 100 points is possible.



#### Thrive Wellness Score

The combination of one's Body Score and Brain Score delivers a good overall assessment of the user's health and well-being. This is their Thrive Wellness Score. A total daily Thrive Wellness Score of 200 points is possible.



## Improving patient lives with the Thrive Hearing app

Thrive offers additional features designed to enhance patients' listening experiences and gain more control of their hearing aids.



#### **Remote Programming**

Patients can request adjustments from you to help fine tune their hearing experience.



#### Language Translation

This first-to-world integrated feature helps patients easily communicate with people who speak other languages via an easy-to-use translation tool in the Thrive app.\*



#### **Personalized Control**

Provides a way for patients to make minor adjustments to suit their preferences in different listening situations.

- \* Requires an internet connection and Livio AI hearing aids.
- \*\* Requires Remote Microphone + for Android devices.



#### Find My Hearing Aids

Patients can easily locate lost hearing aids using the Find My Hearing Aids feature, with both a location and timestamp. A signal detector sends a stronger or weaker signal based on how close a patient is to locating their Livio Al hearing aids.



#### **Phone Calls**

Patients can answer calls with the touch of a button and hear an entire conversation streaming directly to their Livio AI hearing aids.\*



#### **Remote Control**

Using the remote control feature in the Thrive app, patients can change volume and switch memories.



#### **Personalized Memories**

Patients can create multiple custom memories in the Thrive app by using any of the Customize options.

They can even geotag memories. A geotagged memory will use GPS and cellular towers to recognize where they are and automatically adjust their Livio AI hearing aids when they enter that space. For instance, a geotagged "coffee shop" memory will automatically activate when they walk into their favorite coffee shop.



#### **Audio Notifications**

Notifications for phone calls, texts, emails or other apps can be streamed directly to your Livio AI hearing aids.\*\*



#### **Adaptive Car Mode**

With Adaptive Car Mode, Livio AI hearing aids will automatically change to a setting designed to reduce the annoying sounds of driving and enhance a patient's overall driving experience.



#### **Accessory Control**

Easy control of hearing aid accessories via the Thrive Hearing app.



# Universal Bluetooth connectivity with patientfocused accessories

Livio AI connects simply and easily to any modern smartphone, TV or media device, like Amazon® Echo, to stream phone calls, music, voice assistants and more. Thrive, with our new dual radio wireless connectivity, provides patients with important binaural features as well as universal Bluetooth® connectivity to our new line of accessories. These patient-focused accessories are easy to pair and use, and they provide supreme sound quality. Throughout every step of the product design process, improving the overall patient experience was our top priority.



#### STARKEY HEARING TECHNOLOGIES ACCESSORIES



#### TV

Stream audio from a TV or other electronic audio source directly to Livio AI hearing aids. It offers excellent sound quality, is easy to use and supports both analog and digital input sources.



#### Remote Microphone +

Easily stream from a variety of audio sources. And thanks to Remote Microphone +, Livio AI is the first hearing aid to feature Amazon Alexa connectivity.



#### Remote

Our new remote includes updated features so patients can control memory and volume, mute their hearing aids and turn other special features on and off.

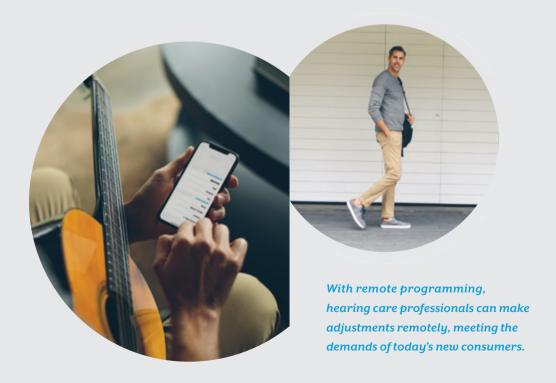
## Hearing Care Anywhere remote programming means added convenience for you and your patients

#### What exceptional service sounds like

Meet the needs of today's busy and time-strapped consumers with Starkey's new telehealth system **Hearing Care Anywhere**, which features remote programming capabilities.

This allows you to troubleshoot and improve the patient experience by delivering programming adjustments directly to a patient's smartphone and hearing aids with no need for them to stop in.

Remote Programming enables the sharing of important health data between you and your patients so you have the latest data and the ability to provide your patients with service on the go.





"We have redefined the hearing aid with embedded sensors and artificial intelligence.

Livio AI is the world's first multi-purpose hearing aid that tracks your physical activity, responds to your tap, detects and sends an alert if you fall and translates foreign languages. In addition, it is our best sounding device ever! "

Achin Bhowmik
Chief Technology Officer and
Executive Vice President of
Engineering







### livio

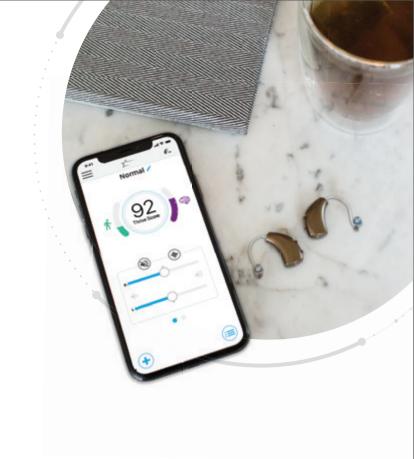
## Helping your patients like never before

What continuous innovation sounds like

Through rigorous and ongoing innovation, and by harnessing today's fast-changing technologies, we can continuously deliver new and better hearing solutions. With Livio AI, and our new Healthable hearing technology, we've reinvented the hearing aid, making it a multi-purpose device that provides superior sound quality, as well as a more accurate way for users to track body and brain health.

From our lab technicians to our scientists, and every employee at every level, we constantly seek ways to better understand the science of hearing loss and its impact on peoples' lives. By continuously pushing the boundaries, we can not only transform what is possible in hearing technology, but ensure that your patients also live healthier and more vibrant lives.

With Livio AI, we've reinvented the hearing aid





It's been proven.
The relationship between
hearing health and overall
health is real.

Hearing loss has been directly linked to several chronic disabling conditions like cognitive decline, diabetes, heart disease, dementia, risk of falling and more.

Dementia, in particular, presents an immense challenge as global populations age. In 2015, there were 47 million people with dementia worldwide, and this number will jump significantly to about 66 million by 2030, and 115 million by 2050.1





## Healthy hearing improves overall health

The good news is that growing research also shows treating hearing loss can improve or limit the risk of some of these serious conditions, including dementia.

Hearing aid wearers have an easier time socializing and enjoying group activities. This can help stave off potential dementia by keeping the brain busy. Music listening also boosts cognitive functions like attention, communication and memory.<sup>2</sup> Hearing aids – especially those offering wireless audio streaming – allow listeners to enjoy those positive health benefits.

Evidence also shows monitoring physical activity can provide great benefits to patients by encouraging even more active behavior.<sup>3</sup>

So, imagine a hearing aid that provides superior sound, universal connectivity and even lets users track daily brain and body fitness. We've delivered with Livio AI.

<sup>&</sup>lt;sup>1</sup> Lancet International Commission on Dementia Care Report (2017)

<sup>&</sup>lt;sup>2</sup> e.g., Wallace, 1994; Thompson et al., 2001; Thompson et al., 2005; Schellenberg et al., 2007

<sup>&</sup>lt;sup>3</sup> Cruz et al 2014

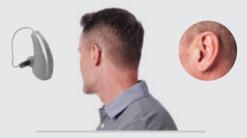
### livio

## livio

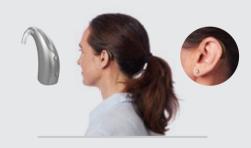


Livio AI is the world's first hearing aid to provide both superior sound quality and the ability for patients to track their brain and body health. As the first-ever hearing aid to feature integrated sensors and artificial intelligence, Livio AI is a multi-purpose device that redefines what a hearing aid can do.

**Livio** hearing aids are a great option for patients who aren't looking for health tracking but still want superior sound quality, personalized control, remote programming and memory management.



**RIC 312** Receiver-In-Canal



**BTE 13** Behind-The-Ear

#### Colors







Bright White with Sterling







Bronze



Champagne

Feature	Al Premium 2400 Healthable Hearing Technology	Premium 2400	Advanced 2000	Select 1600
Platform: Thrive	•	•	•	•
App: Thrive Hearing Control	•	•	•	•
Telehealth Service: Hearing Care Anywhere	•	•	•	•
Wellness Tracking: Thrive Wellness Score	•			
Activity Tracking: Body	•			
Brain Health Tracking: Brain	•			
Tap Control	•			
Language Translation	•			
Tinnitus	•	•	•	•
Sound Imaging: Channels   Bands	24	24	20	16
Bandwidth: Extended 10 KHz	•	•	•	•
Speech Optimization	•	•	•	•
Music Optimization	•	•	•	•
Music Adaptation E2E Music Adaptation	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Ear-to-Ear Technology	•	•	•	•
E2E Wind Noise Management E2E Machine Noise Adaptation E2E Directionality E2E Phone Streaming	1 2 3 4 1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Environment Manager	•	•	•	•
Music Speech Speech and Noise Machine Noise Wind Noise Quiet	1 2 3 4 1 2 3 4	1 2 3 4 1 2 3 4	1 2 3 4 1 2 3 4	1 2 3 4 1 2 3 4
Directional Processing	•	•	•	•
Channels Immersion Adaptive Dynamic Directional	24	24 • • •	20	16
Noise Control	•	•	•	•
Noise Reduction Strength	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Feedback Management	•	•	•	•
Frequency Lowering  Compatibility:	•	•	•	•
Starkey Hearing Technologies Accessories	•	•	•	•

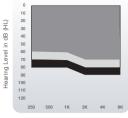


Livio Al 2400 Livio 2400 | 2000 | 1600

#### **Fitting Range**

RIC 312 40

RIC 312 50 RIC 312 60



Frequency (Hz)

#### **Color Guide**

Standard Colors



















#### **Accessory Compatibility**

- Remote Microphone +
- Remote
- 2.4 GHz Programmer

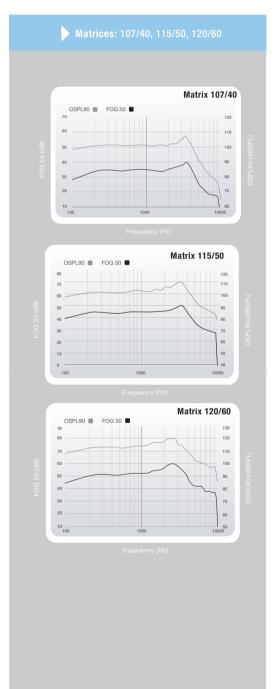
#### **Patient Features**

- Tinnitus Technology
- Wireless Connectivity

#### **Livio Al Technology**

- Integrated sensors and artificial intelligence
- Tracks brain and body health
- Available only in the premium technology level

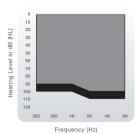
ANSI/IEC cc Coupler  107  102  N/A	IEC OES Coupler	ANSI/IEC 2cc Coupler	IEC OES Coupler	60 Gai	n Data IEC OES Coupler
107 102 N/A	Coupler 120 N/A	2cc Coupler	Coupler		
102 N/A	N/A		127		
N/A		400		120	131
	4.15	109	N/A	117	N/A
40	112	N/A	119	N/A	127
	52	50	63	60	71
35	N/A	45	N/A	56	N/A
N/A	43	N/A	55	N/A	65
<100-9400	<100-6900	<100-9600	<100-9600	<100-9200	<100-9600
N/A	1.6	N/A	1.6	N/A	1.6
1.0,1.6,2.5	N/A	1.0,1.6,2.5	N/A	1.0,1.6,2.5	N/A
25	36	32	44	40	52
26	26	26	26	26	26
<3	<3	<3	<3	<3	<3
<3	<3	<3	<3	<3	<3
<3	<3	<3	<3	<3	<3
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
1.8*	1.7*	1.9*	1.8*	2.1*	2.0*
1.7*	1.7*	1.7*	1.7*	1.8*	1.9*
4-7*	4-7*	4-7*	4-7*	4-7*	4-7*
87		87		87	
07		0.7		07	
81		۵/		87	
	<3 <3 <3 N/A N/A 1.8* 1.7*	<3 <3 <3 <3 <3 <3 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4		<3	<3





#### **Fitting Range**





#### Livio Al 2400 Livio 2400 | 2000 | 1600

#### **Color Guide**

Standard Colors

















#### **Accessory Compatibility**

- Remote Microphone +
- Remote
- 2.4 GHz Programmer

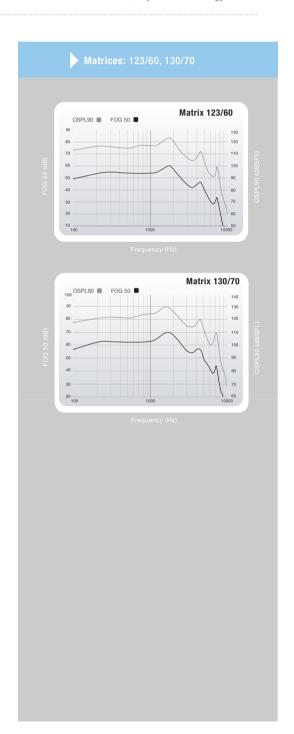
#### **Patient Features**

- Tinnitus Technology
- Wireless Connectivity

#### Livio Al Technology

- Integrated sensors and artificial intelligence
- Tracks brain and body health
- Available only in the premium technology level

	60 Gain Data		70 Gain Data	
Measurement	ANSI/IEC 2cc Coupler	IEC OES Coupler	ANSI/IEC 2cc Coupler	IEC OES Coupler
Peak OSPL90 (dB SPL)	123	133	130	140
HFA OSPL90 (dB SPL)	117	N/A	124	N/A
RTF OSPL90 (dB SPL)	N/A	130	N/A	139
Peak Gain (dB)	60	70	70	81
HFA Full-On Gain (dB)	54	N/A	65	N/A
RTF Full-On Gain (dB)	N/A	66	N/A	78
Frequency Range (Hz)	<100-5500	<100-5700	<100-5800	<100-570
Reference Test Freq. (kHz)	N/A	1.6	N/A	1.6
HFA Frequencies (kHz)	1.0,1.6,2.5	N/A	1.0,1.6,2.5	N/A
Reference Test Gain (dB)	40	55	47	64
Equivalent Input Noise (dB)	26	26	26	26
Harmonic Distortion				
500 Hz (%)	<3	<3	<3	<3
800 Hz (%)	<3	<3	<3	<3
1600 Hz (%)	<3	<3	<3	<3
Induction Coil Sensitivity				
HFA SPLITS (ANSI) (dB SPL)	N/A	N/A	N/A	N/A
MASL (IEC) (dB SPL)	N/A	N/A	N/A	N/A
ANSI/IEC Battery Current (mA)	1.7*	1.7*	1.9*	1.8*
Idle Current (mA)	1.7*	1.7*	1.7*	1.7*
Estimated Battery Life for 16-Hour Day				
312 Zinc Air (days)	4-7*	4-7*	4-7*	4-7*
Tinnitus Therapy Stimulus				
Max RMS Output (dB SPL)	87		87	
Weighted RMS	87		87	
Output Level (dB SPL)				
Max 1/3 Octave Output (dB SPL)	87		87	

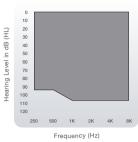




#### Livio Al 2400 Livio 2400 | 2000 | 1600

#### **Fitting Range**





#### **Color Guide**

Standard Colors



















#### **Accessory Compatibility**

- TV
- Remote Microphone +
- Remote
- 2.4 GHz Programmer

#### **Patient Features**

- Tinnitus Technology
- Telecoil
- Wireless Connectivity

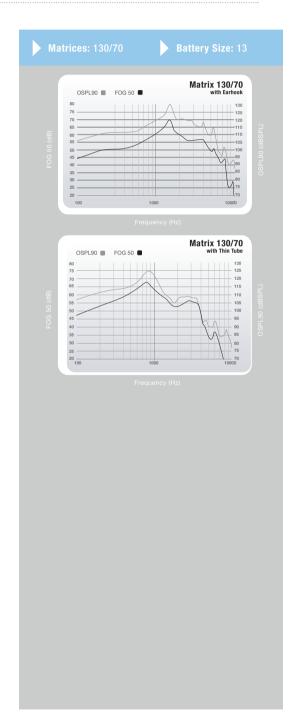
#### Livio Al Technology

- Integrated sensors and artificial intelligence
- Tracks brain and body health
- Available only in the premium technology level

Earh	ook
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#### Size 3, Occluded **Thin Tube**

Measurement	ANSI/IEC 2cc Coupler	IEC OES Coupler	ANSI/IEC 2cc Coupler	IEC OES Coupler
Peak OSPL90 (dB SPL)	130	136	124	129
HFA OSPL90 (dB SPL)	122	N/A	112	N/A
RTF OSPL90 (dB SPL)	N/A	134	N/A	114
Peak Gain (dB)	70	76	68	73
HFA Full-On Gain (dB)	62	N/A	57	N/A
RTF Full-On Gain (dB)	N/A	73	N/A	61
Frequency Range (Hz)	<100-7600	<100-7800	<100-4600	<100-6800
Reference Test Freq. (kHz)	N/A	1.6	N/A	1.6
HFA Frequencies (kHz)	1.0,1.6,2.5	N/A	1.0,1.6,2.5	N/A
Reference Test Gain (dB)	45	59	35	39
Equivalent Input Noise (dB)	24	18	29	29
Harmonic Distortion				
500 Hz (%)	<3	<3	<3	<3
800 Hz (%)	<5	<5	<3	<3
1600 Hz (%)	<3	<3	<3	<3
Induction Coil Sensitivity				
HFA SPLITS (ANSI) (dB SPL)	101	N/A	91	N/A
MASL (IEC) (dB SPL)	92	N/A	88	N/A
ANSI/IEC Battery Current (mA)	1.9*	1.8*	1.9*	1.8*
Idle Current (mA)	1.7*	1.7*	1.7*	1.7*
Estimated Battery Life for 16-Hour Day				
13 Zinc Air (days)	7-11*	7-11*	7-11*	7-11*
Tinnitus Therapy Stimulus				
Max RMS Output (dB SPL)	87		87	
Weighted RMS Output Level (dB SPL)	87		87	
Max 1/3 Octave Output (dB SPL)	87		87	









livio

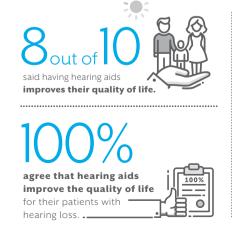
#### Hearing aids improve lives



One of the most trusted and recommended sites on the internet, WebMD,® recently conducted a survey\* of hearing aid purchasers and healthcare professionals who regularly diagnose hearing loss.

The results reveal what hearing aid wearers think of their purchase, and what differences physicians, audiologists and other hearing care professionals notice in their patients who wear hearing aids.

What hearing aid purchasers said:





### Hear better. Live better.











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**ば**iPhone | iPad | Apple Watch