

Every child
deserves the best



PEDIATRIC LINE



Premium speech understanding
fundamental to children's development

Every child deserves the best

Give every child access to the benefits of high performance hearing instruments

Oticon Sensei is by far our most advanced paediatric hearing solution to date and represents the next frontier of premium paediatric audiology.

Delivering high performance speech understanding even in complex environments, Sensei offers impressive flexibility through its ability to adapt to the specific daily situational needs of every child with hearing loss. It comprises unique paediatric features, developed especially for paediatric needs to address the living practicalities of childhood.

Oticon Sensei will empower you to meet the very many challenges children with hearing loss experience along their journey to adulthood.



Speech Guard E

Industry First!
SmartFit™ Trainer

New!
VoicePriority i™

Inium feedback shield

New!
FM Compatibility Filter

10 KHz Bandwidth

New!
FM Super Silencer

New!
EasyRECD™

ConnectLine

Tristate Noise Management

Improved!
Robustness



Empower children at every stage of childhood

By giving them what they need to advocate for themselves

Every child deserves the best future possible and children with hearing loss are no exception. Indeed, that is why we have defined an Audiological Mission that has guided the development of Oticon Sensei: A better future for every child with hearing loss

Our Mission's three defining dimensions

Individualisation

To empower you to adapt solutions to meet each developmental stage of every child according to their individual physiological, educational and lifestyle needs.

Performance

To deliver technology that will optimise auditory and cognitive habilitation, giving children the best possible speech understanding in every situation while minimising their cognitive load.

Living

To acknowledge the very real and challenging every day complexities of growing up with hearing loss and accordingly develop support to assist children, parents and audiologists.



Infants

No auditory experience

Maximum audibility achieved with optimal handling of the acoustic signal is key to allowing the auditory and cognitive system to develop as rapidly and fully as possible.

- Less sensitive to sound and have auditory thresholds that are higher than adults
- Frequency resolution reaches maturity at 6 months, but frequency discrimination will not mature until late-childhood

Pre-schoolers

Fundamental binaural hearing

The child's auditory maturity strongly depends on the richness of sensory exposure.

- The maturation of gap detection abilities are developed to ensure appropriate listening skills
- Temporal resolution and localisation abilities approach maturity around 6 years of age

School age

Complex binaural and higher-level auditory skills

Although the child's world still consists of a broad range of complex listening environments, focus is now on learning vast amounts of spoken and incidental information in school.

- Use of less salient cues
- Sound-source segregation and auditory attention continue to develop and mature

Teenager

Emerging adult-like auditory skills

As they prepare for the adult world, it is essential that teenagers enjoy full access to the auditory world.

- The ability to attend to and extract information is still developing
- 15 year-olds are more affected by noise and reverberation than adults

We know every child is unique

And Oticon Sensei adapts to all of them

All children have their own interests and progress differently over time. Children frequently change sound environments in their active lives and this normally presents challenges when deciding on an appropriate hearing solution. But not with Oticon Sensei.

Sensei is extremely compliant. It can be adapted to provide optimised hearing for any child, whatever their day entails and in whatever environments they participate. Sensei's flexibility makes fittings more efficient, which given the number of fitting appointments children often require, is highly advantageous.

The following strategies are supported to meet hearing needs at each stage of childhood:

Infancy

Immediate amplification coupled with early intervention to support the relationship between sound and meaning, with our broadest possible bandwidth.

Pre-school

Maintain a natural, complete sound picture with our broadest possible bandwidth.

School age

Audibility with focus on speech intelligibility, FM in school and automatic adaptive technology - including noise reduction, compression and directionality when necessary.

Teenage

Adaptive automatic systems to address increasingly complex environments and connectivity options to facilitate access to FM, communication devices and consumer electronics.







Designed for child development

Ensure speech intelligibility in any listening situation

Oticon Sensei delivers an enhanced speech signal in any situation or environment, allowing children to develop their auditory systems in as close to natural way as possible, minimizing their cognitive load.

The advanced Inium chip enables Oticon Sensei to deliver a carefully composed package of signal processing schemes.

Targeting normal auditory development

When developing paediatric hearing instruments, it is essential to ensure not only the audibility of all sounds but also intelligibility of speech sounds. The prescriptive rationale manifests itself in the auditory environment through the compression scheme. To support this, Speech Guard E preserves the dynamic, high frequency content of speech, which help the child distinguish the speech of a given speaker from others.

We always strive to provide the targeted high frequency gain. To control the potential for feedback, Oticon deploys a triple feedback protection scheme.



The Inium feedback shield has made it possible for Dynamic Feedback Cancellation to reach new heights in the ongoing effort of preventing feedback without compromising sound quality or the gain delivered.

Adapting to complex environments

In quiet surroundings, a new front focused surround mode, in combination with wide bandwidth, will secure high sound fidelity to deliver a rich and natural auditory input. Furthermore, when the intensity and complexity of the background noise increases, binaurally coordinated Adaptive Directionality and Tristate Noise Management can be of assistance to the older child. This array of automatic systems preserves speech understanding by adapting when sound environments change.

The audiological package

- 🌀 Excellent DSL target match
- 🌀 10 kHz bandwidth
- 🌀 Premium binaural adaptive noise management
- 🌀 Binaural adaptive directionality
- 🌀 Speech Guard E - Premium compression scheme
- 🌀 Inium Feedback shield - Triple feedback protection

Grow up with a rich sound picture

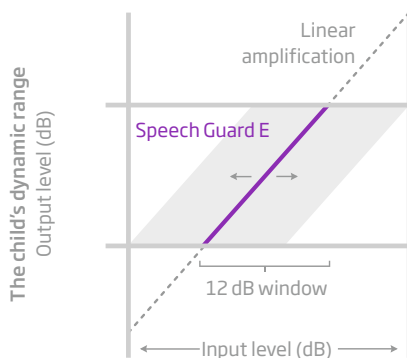
Speech Guard E preserves the natural speech cues essential for optimal participation in daily life

A critical aspect of hearing technology design is to match the acoustic signal to residual auditory function. Speech constitutes the most important auditory signal to human communication and how a speech signal is processed by a compression scheme affects auditory processing and neuronal encoding in the brain. This is why the sound presented to the auditory system of a child with hearing loss should be undistorted and contain as many details of the original signal as possible.

In other words, providing each child with optimally compressed acoustic stimuli by their amplification enables extraction of acoustic information for proficient sub-cortical encoding and cortical representation. Growing up with a rich sound picture will equip the child to recognise speech not only in quiet situations but also under noisy conditions.

How Speech Guard E works




Speech Guard E is the amplitude compression system in Oticon Sensei Pro. It combines two methods of amplification: non linear and linear in a single compression system that helps preserve the fine details of sound - from soft to loud - making sounds audible, comfortable and clear. Speech Guard E delivers sound information needed to improve speech understanding and increases a child's ability to complete complex auditory tasks.



The linear window of Speech Guard E is indicated by the purple line within the input/output domain. The window will move depending on the input level. At all times it will thus stay within the auditory dynamic range, making the output audible, comfortable and clear.



Speech Guard E

-  Helps deliver the natural sound information needed to improve speech understanding
-  Preserves the fine details of sound - from soft to loud - making them audible, comfortable and clear
-  Improves children's ability to complete complex auditory tasks



Perfect placement every day

SmartFit™ Trainer helps parents ensure their child's earmold is placed correctly

An industry first! With SmartFit™ Trainer, Oticon solves the predicament faced by many parents: ensuring earmolds are inserted correctly.

Designed specifically for pediatric use, SmartFit™ Trainer in Oticon Sensei helps you empower parents so that they can always be certain a mold is inserted correctly. It is designed to help in both the training of inserting earmolds at the fitting and later at home, when the parents need to feel confident handling their child's new instruments. SmartFit™ Trainer is just another example of Oticon's commitment to embracing and solving the practicalities of pediatric hearing loss.

How SmartFit™ Trainer works

Proper insertion is determined by comparing the leakage out the ear with a reference value in the instrument. SmartFit™ Trainer makes a quick leakage measurement at seven frequencies up to seven times. When all frequencies are above their reference value the LED is turned off, indicating a good insertion.

If the earmold placement is unsuccessful, the LED will begin to blink rapidly to alert the parent or other caregiver. If no corrective action is taken to re-seat the mold, the instrument will start-up in the general program and, if desired, the SmartFit™ Trainer can be reset by turning the instrument off and back on.








LED indicator flashes to alert that the mold is not correctly placed.



LED indicator turns off when mold is correctly placed

SmartFit™ Trainer benefits

-  Ensures correct earmold insertion every day
-  Confirms to parents they have inserted the earmold correctly
-  Helps empower parents and caregivers in the training of earmold insertion
-  Assists in troubleshooting feedback issues
-  Reoccurring daily alerts can indicate when an earmold could need replacing





No more whistling





Inium feedback shield prevents feedback without artefact drawbacks

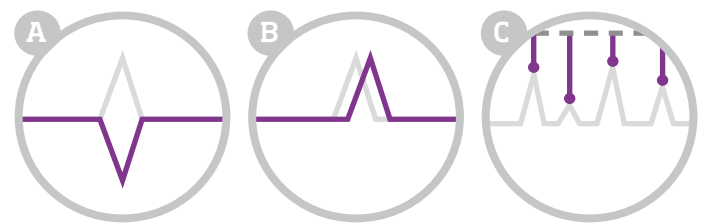
Fitting instruments to fast-growing ears presents many challenges. For the audiologist and parents, it's keeping up with earmold remakes, while the anti-feedback system tries to keep up with the slowly and continuously changing feedback path. Given the importance of wearing instruments continually a robustly designed anti-feedback system is essential.

How Inium feedback shield works

In Oticon Sensei, the Inium feedback shield combines three technologies; phase inversion, frequency shift, and feedback limit estimation to control feedback while maintaining optimal sound quality. The enhanced sound quality produced by all of Sensei's careful signal processing remains uncompromised.

Inium feedback shield

-  Eliminates whistling in a wide variety of situations
-  Ensures consistently good sound quality
-  Provides an improved estimate of the feedback path for reliable feedback management
-  Allows high frequency amplification with minimal feedback



A. At the core of Inium feedback shield, Dynamic Feedback Cancellation (DFC) applies **phase inversion** to cancel feedback.

B. **Frequency shift** is applied to de-correlate the output and input, enabling the DFC to differentiate between true feedback and tones from the environment.

C. Gain control based on continuous **feedback limit estimation** is applied to avoid feedback under extreme and sudden conditions.

Made for childhood

Oticon Sensei is designed to last







Children are often on the move - most of us admire their energy - but that means they need instruments that can stand up to an active lifestyle and be able to adapt to the many situations a child encounters, at school, at home and when they play. Not only that, instruments must also be safe for children. In Oticon Sensei this risk has been addressed through the use of a tamper resistant battery door and a switch free button cover.

Through many years of developing dedicated pediatric instruments and research into the very varied lifestyles of children, features that increase robustness such as a reinforced hook, nano-coating, shock resistant design and IP57 classification have been incorporated into Sensei. Making the instrument as safe as possible for children has been a major focus in the development of the product. This includes hypo allergenic and phthalate free materials, a tamper resistance battery door and much more.



Strengthened shell construction, as well as new and improved access pins and hook.

Safety and robustness

-  **Hypo allergenic**
Reduced risk of allergic reactions from the composites used in instrument construction
-  **Nano-coated**
A polymer coating that reduces the risk of water damage to the instrument
-  **Drop-tested**
In test conditions the instrument withstood ten out of ten drops from two metres
-  **IP57 classified**
Certification for dust and water resistance
-  **Phthalates free**
Contains no phthalates compounds
-  **Tamper resistant**
To keep batteries away from inquisitive fingers



Oticon Sensei and much more

So many possibilities, so much value

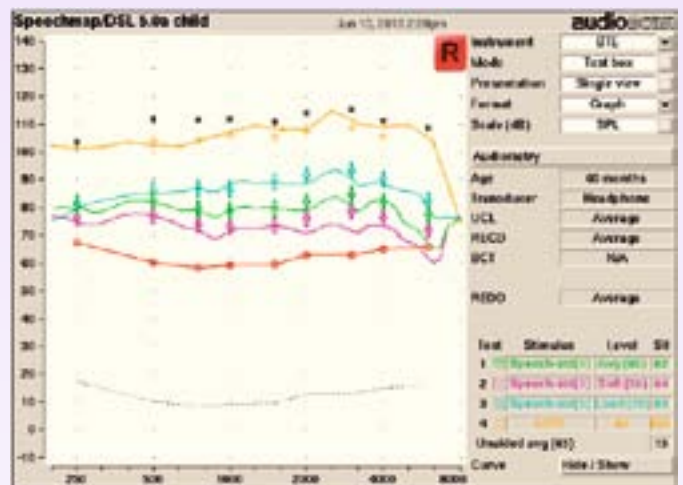
Fitting

Genie's fitting flow means achieving more in less time while accurately meeting DSL targets

The Pediatric Fitting Mode is designed to accommodate the unique challenges you face when fitting children. Genie offers you greater flexibility and peace of mind knowing instruments are set as intended.

The DSL implementation in Sensei gives a good starting point when fitting to targets. A gain trimmer for moderate input levels has been added to make matching targets and fine tuning Oticon Sensei significantly easier.

Integration with REM equipment through Genie and the possibility to import not only audiometric but also real-ear data from NOAH further smoothens the paediatric fitting process.



EasyRECD™

EasyRECD™ tool takes the complexity out of assessing individual ear acoustics

Correctly fitting infants and children can be quite challenging. Because their ear canals grow so quickly, ensuring accurate amplification is an ongoing process and one that presents countless time consuming issues.

Oticon's intuitive concept, EasyRECD™ allows you to easily account for individual ear acoustics in the fitting of Sensei to infants and children. EasyRECD™ is complemented by a three step protocol with illustration and explanatory texts to guide you through the process.



An easy-to-use and fast method to assess individual ear acoustics on infants and children.

VoicePriority *i*™

VoicePriority *i*™ gives children the ability to prioritise sounds in the classroom

The classroom environment is alive with noise and sounds that compete with the teacher's voice which can easily affect concentration. This is addressed in Sensei through an advanced, adaptive FM strategy.

When an FM receiver is attached ear-level or via Streamer Pro, Sensei instruments monitor the noise level around the child. If the SNR is poorer than 6 dB and noise levels reach 58 dB(A,) VoicePriority *i*™ incrementally increases FM gain. The SNR detector in Sensei analyse listening conditions around the child, rather than in the FM transmitters around the teacher as other adaptive systems do. This ensures the child always gets the FM gain they need.



ConnectLine

Complete wireless connectivity

The ConnectLine system includes the Streamer Pro, TV and phone adapters, audio cable and microphone. Together they offer children access to communication, educational and entertainment solutions.

Children can use FM in class without adding to the size of their instruments as the receiver is attached to the bottom of the Streamer, which can itself be discreetly hidden under a shirt. Outside school, your young clients can use ConnectLine to listen to music, watch TV, talk on the phone, use Skype, FaceTime and have private one-on-one conversations.



ConnectLine offers wireless connection to all modern media.

The FM receiver attaches discreetly to Streamer Pro.







One high performance solution

Two value packed options

Oticon Sensei is a premium solution that is available at two price points. Both come fully integrated with the high performance sound quality synonymous with Oticon's pediatric solutions. The Sensei family consists of a variety of styles covering BTE, RITE and Corda options. Products in the Sensei family all feature 10kHz of bandwidth, Inium feedback Shield, TriState Noise management, ConnectLine, VoicePriority *i*TM, FM compatibility filter, FM Super Silencer and Adaptive Directionality. Other features may be compared in the chart below.

Pro	Standard
Speech Guard E	WDRC
Inium feedback shield	Inium feedback shield
10 kHz Bandwidth	10 kHz Bandwidth
SmartFit TM Trainer	
EasyRECD TM	
Tristate Noise Management	Tristate Noise Management
ConnectLine	ConnectLine
VoicePriority <i>i</i> TM	VoicePriority <i>i</i> TM
FM compatible	FM compatible
FM Super Silencer	FM Super Silencer
Adaptive Directionality	Adaptive Directionality

Oticon Sensei product overview



	Sensei Pro BTE13 90	Sensei Pro BTE312 75	Sensei Pro RITE
MPO/Gain Ear Simulator	135/68	126/61	132/66 127/65 115/46
Fitting formulas	DSL, NAL	DSL, NAL	DSL, NAL
Speech Guard E	•	•	•
SmartFit™ Trainer	•	•	-
EasyRECD™	•	•	•
VoicePriority i™	•	•	•
Inium feedback shield	•	•	•
LED status indicator	•	•	•
Bin Synchronization (automatics)	•	•	•
Bin Coordination (PB)	•	•	•
Bin Coordination (VC)	•	•	•
Noise Management	TriState	TriState	TriState
Adaptive Directionality	Multi band	Multi band	Multi band
Fitting bandwidth	10 kHz	10 kHz	10 kHz
Power Bass	•	•	•
Music Widening	•	•	•
Fitting bands	10	10	10
Frequency channels	16	16	16
Program control	•	•	•
Volume control	•	•	•
Tamper resistant battery door	•	•	•
Telecoil	•	•	•
AutoPhone	•	•	•
ConnectLine compatible	•	•	•
FM compatible	•	•	•
Pediatric Fitting Mode	•	•	•
Battery size	13	312	312
Battery life	240	130	120
Colors	11	11	11



Chroma Beige



Terracotta



Chestnut Brown



Silver



Diamond Black



Baby Blue



	Sensei BTE13 90	Sensei BTE312 75	Sensei RITE
MPO/Gain Ear Simulator	135/68	126/61	132/66 127/65 115/46
Fitting formulas	DSL, NAL	DSL, NAL	DSL, NAL
Speech Guard E	-	-	-
SmartFit™ Trainer	-	-	-
EasyRECD™	-	-	-
VoicePriority i™	•	•	•
Inium feedback shield	•	•	•
LED status indicator	•	•	•
Bin Synchronization (automatics)	-	-	-
Bin Coordination (PB)	•	•	•
Bin Coordination (VC)	•	•	•
Noise Management	TriState	TriState	TriState
Adaptive Directionality	Single band	Single band	Single band
Fitting bandwidth	10 kHz	10 kHz	10 kHz
Power Bass	-	-	-
Music Widening	-	-	-
Fitting bands	8	8	8
Frequency channels	16	16	16
Program control	•	•	•
Volume control	•	•	•
Tamper resistant battery door	•	•	•
Telecoil	•	•	•
AutoPhone	•	•	•
ConnectLine compatible	•	•	•
FM compatible	•	•	•
Pediatric Fitting Mode	•	•	•
Battery size	13	312	312
Battery life	240	130	120
Colors	11	11	11



Baby Pink



Purple



Red



Blue



Emerald Green

New!

People First

People First is our promise to empower people to communicate freely, interact naturally and participate actively

child
friendly
hearing
care

Our pediatric audiological mission is to ensure a better future for every child with hearing loss. We will deliver solutions, tools and techniques that optimise auditory and cognitive habilitation, embrace the complexities of growing up with hearing loss and empower you to adapt solutions to each child's developmental stage on their journey to adulthood.

